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Original Communications.

ART. I.—*On the Influence of Temperature upon the Transformations of Glycogen and Hepatic Sugar.*[1] By W. HUTSON FORD, M. D., of St. Louis, Mo.

SINCE the discovery of hepatic glucose in 1848, physiological labor has been actively engaged in repeating and counter-proving Bernard's experiments, and in a collateral amplification of the subject of glycogenesis, both in its normal and morbid aspects. It is, however, characteristic of the mass of this labor, including nearly all of Bernard's individual researches, that attention has been chiefly directed to the phenomena attendant upon the *origin* of hepatic sugar, and to its quantitative variations in the liver and blood, while the conditions and mechanism of its final disappearance in the organism have received but little examination.

This seems strange when we consider that hepatic glucose is incessantly and abundantly poured into the circulation; that is, *without doubt*, the final representative of by far the greater portion by weight of all the food we consume, and that every stage of its formation and destruction is certainly attended by the liberation of important stores of heat.

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[1] This article, in its present form, was received from Dr. Ford in March, 1877.—EDITOR.

Glucose is known to be present in the liver, the blood, the cephalo-rachidian fluid, and the lymph, and to be directly originated by the saccharification of glycogen contained in the liver-cells; but, whether it truly exists within these cells, or is first formed in their interspaces, or within the intercellular capillaries by a zymogenous action of the blood upon glycogen exuded from the cells, we cannot at present positively say. However this may be, that the liver is the only organ of the adult economy which originates glucose cannot now be regarded as disputable; for, in spite of disingenuous, protracted, and almost crushing assaults, the proposition advanced by Bernard has been fully substantiated, and must be recognized as the declaration of a fundamental truth in physiology. This interesting and important function of the liver we have reason for thinking, in accordance with views originally expressed by Moleschott, of Heidelberg, should be classed as a local manifestation of characteristic and universal movements of the economy; as a specialized mode of that molecular disintegration, everywhere in progress, upon which all vital activity, including even sensation, is indisputably based. As a physiological particulate, however, it must be affirmed that the liver is the only source of glucose in the adult animal body—the only organ in which sugar is formed or appears unless introduced *ab externo*—"*le foie seul forme le sucre.*"

After establishing the main points bearing upon the origin of this glucose by a systematic, laborious, and justly-celebrated experimentation, Bernard observed that the formation of sugar in the liver is, to a certain extent, independent of the circulation, and that it may continue, even after extirpation of the liver, in virtue of a glycogenetic property resident in the hepatic tissue, since by digestion, at a proper temperature, the quantity of sugar is notably increased, becoming after a certain time very abundant. Notwithstanding his acquaintance with this fact and others of a similar import, Bernard has omitted to express any suspicion that during life, and while an active circulation coursed through the liver, only a *bare trace* of sugar might really be present in the organ, or even *none at all*, if its vascular apparatus and their contents should be excluded from the abstract concept, or scheme, of true hepatic tissue, while nevertheless, as a whole, the liver should be actively engaged in the production of sugar. Not knowing how very short a time is required after death for the accumulation of a notable quantity of sugar in portions of excised liver, he has calculated his estimates altogether too high, by failing to dose his excised bits of liver soon enough after excision; neglecting to appreciate the retrospective significance of observations he had himself made respecting a point on which Pavy afterward based a highly-plausible though unsound hypothesis. In consequence of this omission, Bernard's earlier and best known dosages of sugar in the liver do not indicate the *quantity* present during life, but relate *almost* entirely to the faculty the organ enjoys of generating sugar, after death, by a continuation of the chemical processes active within it while a part of the living body.

Indeed, it must be held that the transformations observed in the exsected liver, especially if the organ be maintained at the temperature proper for its functional activity during life, do not vary at all in chemical character from those normally occurring within that period which precedes the establishment of putrefaction; differences observed thus far have been conclusively shown to be of a *purely quantitative* kind.

Not accepting this doctrine, Pavy very unexpectedly assailed the glycogenetic theory, in a paper read before the Royal Society in June, 1858. He injected a strong solution of potassa into the liver immediately after death, with the proposed object of arresting the function upon which glycogenesis depended, but his method was altogether faulty. By such a procedure he not only washed out from the parenchyma of the organ all traces of sugar presumably present, but, if any escaped evection in this way, inadvertently effected its prompt conversion by a well-known chemical reaction (*see* Bernard's "Leçons," 1854–'55, pp. 32, 33) into substances devoid of reducing power on the salts of copper. Thus unintentionally did the experimenter himself remove and destroy the very substance in question, from whose absence he proposed to deduce a denial of the glycogenetic function. By a legitimate method, however, he determined an exceedingly valuable fact—namely, having suddenly sliced off a piece of the liver of the dog just killed, he threw it instantly upon a freezing mixture of ice and salt; when frozen, it was ground into a pulp and a decoction made of it; the absence of sugar was *almost complete*. This experiment, the first of its kind, must be regarded as a cardinal one on this subject. Pavy, therefore, claimed that, as usually encountered in the hepatic tissue and blood after death, sugar must be entirely of *post-mortem* formation.

Although Pavy's injection-experiments were presently shown by Thudichum and Harley in England to be irrelevant, a close critical attention was at once directed to the point at issue, and observers were astonished to find glucose nearly or quite absent from bits of liver tested immediately after exsection, or after freezing, as Pavy had affirmed. Many physiologists repeated Pavy's experiments, and adopted his conclusions, so that, a variety of considerations still cogent being temporarily lost sight of, faith in Bernard's doctrine was profoundly shaken. The liver, during life, did not seem either to contain or to form sugar, notwithstanding all that had up to this time been so authoritatively taught.

It began to be suspected, after a time, that the difficulty might lie in the normal presence of a far smaller quantity of saccharine matter in the hepatic substance than Bernard, C. Schmidt, Lehmann, Poisseuille and Lefort, and others, had as yet imagined, and that during life this quantity might be so extremely small as to escape detection, at least by tests hitherto employed. Experiments, nevertheless, even under this preconception, by Meissner and Jäger entirely corroborated Pavy's affirmations. Meissner and Ritter sliced out portions of liver from living rabbits, which they immediately plunged into boiling water; they observed no sugar-reaction with *Trommer's test.* So also, in 1866, Schiff attained similar results. In 1868, by a more careful application of his tests, Eulenberg was able to establish the existence of traces of sugar in the watery decoctions of fresh healthy livers; but, fearing that even the short interval elapsing between the excision and comminution of the bits of tissue and their elevation to 212° may have allowed a *post-mortem* generation of sugar, he ground the bits of liver-substance in a mortar with pounded glass and alcohol immediately after exsection; nevertheless, on testing extracts so obtained, there was no evidence whatsoever of the presence of sugar by the mode of testing he employed, which does not seem to have been applied with sufficient delicacy.

Thus, during a period of at least eight years, the glycogenetic theory remained more or less invalidated by the results of such authoritative, and, to all appearance, conclusive experimentation.

Our accomplished fellow-countryman, Flint, seems first to have advanced anew to meet the question, and to endeavor to harmonize the apparently irreconcilable views of physiologists. In 1868 (NEW YORK MEDICAL JOURNAL, January, 1869) he published a short paper on this subject, with the details of three experiments on dogs. The liver-tissue was excised and thrown into boiling water, and the watery decoction made by further boiling was tested. When the time between excision and immersion was twenty-eight seconds, the presence of sugar by *Trommer's test* could not be affirmed. In Experiment II. the time was ten seconds; *Trommer's test* was again applied, but there was still *no evidence* of the presence of sugar. In Experiment III. the time was again ten seconds; after boiling for seventeen minutes, Fehling's liquid, the most delicate and reliable of all sugar-tests, still failed entirely to show the presence of sugar in the *liver decoction*, though revealing unmistakably the existence of a small quantity of that substance in a sample of the blood of the *hepatic veins*, obtained directly after excision of the bit of liver.

In neither of these experiments was Flint able to demonstrate the presence of sugar in the hepatic tissue; its existence in the blood of the hepatic veins, however, it must be recollected, was not in question, and had never been denied. Flint seems to have collected the blood more rapidly than it had ever been done before, not more than one minute being consumed in Experiment III. in the application of the ligatures.

Few operators have been rapid enough in their manipulation to execute the required procedures within anything like so short a time; usually from five to ten minutes are spent in the application of the abdominal and thoracic ligatures; speed, however, was essentially a condition of Flint's hypothesis. With a properly-prepared Fehling's liquid, no competent observer has ever failed, in a healthy animal, to detect sugar in the blood of the hepatic veins; its quantity is usually from one-half of one per cent. to one per cent. of the *dry residue* of such blood. I have often had occasion, while experimenting or lecturing on this subject, to observe the uniform presence of sugar in this locality, but I can remember one or two instances where I was unable to detect more than the *feeblest traces* of sugar in *bits of liver* simultaneously cut off and made into a decoction. This was especially so in an experiment in 1856, where a dog was rapidly opened, a bit of liver cut off quickly (with a haste, however, due to other considerations), and pulped, while the liver was torn out and thrown into a retort. When tested for sugar by Fehling's test, the bit of liver showed an exceedingly small quantity of that substance; and, as the animal was in perfect health, I was quite at a loss for an explanation of the matter, as this was two years before Pavy's experiments were reported.

Although his results did not strictly warrant his conclusions, Flint decided in favor of a normal hepatic glycogenesis. "During life," he says, "the liver contains only glycogenic matter, and no sugar, because the blood washes out the sugar as fast as it is formed; but after death, or interference with the circulation, sugar is not thus removed, and can be detected in the substance of the liver."

Following Flint, Lusk, of New York, in a very able critique of this subject in a paper on the "Origin of Diabetes" (*see* NEW YORK MEDICAL JOURNAL, July, 1870), detailed some careful and highly-satisfactory experiments on dogs, in which from a quarter to half a grain of sugar to the ounce of blood was found in the blood of the right ventricle of the heart, and by ocular admeasurement about one-fourth as much in the blood of the *jugular vein;* the method followed was catheterization of the ventricle as practised by Bernard. In his affirmation respecting the presence of glucose in the *systemic blood*, Lusk substantiated previous determinations of Coze and Pavy. In experiments of this kind, Pavy had expressed surprise at the "exceedingly minute" quantity of sugar present in such blood, omitting to take into account the velocity of the blood-current. He thought more sugar was found in blood drawn from the ventricle through a fine incision.

The presence of sugar in the hepatic veins, and in the ascending cava between the orifices of the hepatic veins and the heart, and in the right ventricle also, is thus seen to have saved the glycogenic theory from annihilation; the existence of sugar in these localities persisting as a fact which could not be explained without recurrence to hepatic action as the source of the sugar, when the indisputable absence of this substance in the abdominal vena cava below the *débouchement* of the hepatic veins, and in the blood of the portal system, was taken into consideration.

In 1871 Dalton made the most careful and decisive experiments on the subject which had yet been instituted. He crushed his bits of exsected liver in a special appliance, working far more rapidly than the pestle and mortar, and threw them at once into alcohol or boiling water. Fehling's test was used with the greatest circumspection. The time consumed in exsecting the bits of liver, in twenty experiments, varied from three to thirteen seconds, averaging 6.2 seconds. In every case the "final watery solution gave a decided and perfectly unmistakable sugar-reaction," amply sufficient for the employment of volumetric methods of determination. Dalton found 2.4872 parts of sugar in 1000 of liver-tissue as a mean of ten experiments (*maximum* 4.3750, *minimum* 0.8040). In his tabulated results, I can trace no relation between the time consumed in extirpation or the period elapsing after the animals were fed and the quantity of sugar found. Dalton's conclusions were as follows:

1. Sugar is to be found in the liver at the earliest period at which it is possible to examine the organ after extirpation.

2. The average quantity *at this time* is at least 2.5 parts per 1000.

3. The sugar thus found does not belong to the arterial

blood with which the organ is supplied, but is a normal ingredient of the hepatic tissue.

These results must, beyond all doubt, be taken as representing the nearest approximation to the truth yet reached, and as constituting an exceedingly important modification of Bernard's early statements relative to the quantity of sugar normally present in the liver.

The incidents of the discovery and isolation of the glycogenic matter, whose existence had been for several years suspected by its discoverer, and the repeated and prolonged discussions of the subject before the Parisian Academy, are well known. Notwithstanding much ill-conceived and some unfair criticism, Bernard's fundamental views respecting the nature and proximate destination of glycogen have survived, and may now be said to be universally accepted. In his original paper of March 23, 1857, Bernard speaks of the method of isolating the glycogenic matter. The next year Kekulé confirmed the statements of Bernard, Hensen, and Pelouze with regard to its chemical status and properties. It is an amorphous white substance, giving, with iodine, a violet or reddish-brown color. Its aqueous solution is opalescent, but becomes clear on boiling with dilute sulphuric acid, or when a little saliva is added, with maintenance of a proper temperature. Prolonged ebullition with acids is requisite for its complete conversion into glucose. Kekulé's formula for it was $\mathrm{C}_6\mathrm{H}_{10}\mathrm{O}_5$. The liver of dogs contains as much on an average as two per cent. of glycogen.

Our knowledge of the glycogenic function of the liver may be fairly summed up, in brief, as follows:

1. The induction of dextrinoid and amylaceous matter, and of sugar, from the digestive tract effects a prompt increase of glycogen in the liver-cells. Under these circumstances a freshly-made decoction of the liver is opalescent. Even in fasting carnivora glycogen is found in the healthy liver, and must therefore be formed from the elements of the blood. It is highly probable that glycogen originates in a decomposition of fibrinous or other proteinoid matter, principally brought to the liver by the vena portæ, but in part, perhaps, also by the hepatic artery.

2. Glycogen is more nearly allied to dextrine than to starch, and is converted into hepatic sugar by all agencies capable of converting dextrine into glucose, with a facility far greater than is observable for dextrine of vegetable origin. In this facile convertibility glycogen is like hepatic sugar itself.

3. A certain zymogenous agency resident in the liver or hepatic blood must be invoked as the cause of this change of glycogen into hepatic sugar—a transformation which takes place with great ease at the temperature normal to the liver, but with far less readiness at lower temperatures. This conversion is normally in constant progress, so that the blood escaping by the hepatic veins always contains glucose in small but very constant quantity. It is *probable* that the saccharification of glycogen does not occur in the cells of the liver, but only begins either in the cellular interspaces or in the radicles of the hepatic veins. Even systemic blood is able to saccharify glycogen at the temperature of the body.

4. The glucose thus constantly formed is rapidly borne away by the blood toward the lungs. If the animal be in digestion its quantity is considerably greater than usual, and much of it escapes through the left side of the heart into the general circulation. This seems to be the case habitually with herbivorous animals, which are more or less in digestion at all times; but in fasting carnivora, most of the sugar is destroyed in the lungs, though a certain very small portion may be regarded as normally present in the systemic blood, having escaped the peculiar decompositive influences of the pneumo-cardiac circulation. It is here that glucose is chiefly destroyed, though it finally disappears in the blood-mass, perhaps in consequence of repeated transits through the lungs; at least it never appears normally in any of the secretions.

I have thus briefly sketched the status of glycogenetic theory, as preliminary to a detail of experiments bearing upon the disappearance of sugar in the blood—a subject, as I have remarked, hitherto but little studied. This omission seems to be greatly due to the influence of Bernard's hypothetical views concerning the signification and uses of sugar in the economy. His hypothesis of "*animal germination*" led him to attach far greater importance to the *origin* of sugar than to its *disappearance*, which he appears to have regarded as not differing essentially in physiological import from the excretion of any of the admittedly effete crystalloidal products of nutrition, such as uric acid, urea, and saline bodies. I have never been able to look upon the disappearance of sugar in this light, for we cannot surely regard as an effete substance one which results from such elaborate processes, and which is undoubtedly subjected to a decomposition within the body, attended by the evolution of a very considerable share of *heat*, heat being largely developed also by the direct *oxidation* of the *products* of this *decomposition*. It is not philosophical to regard the origin or the disappearance of sugar as more important the one than the other, nor to entertain teleological views with respect to the uses of a substance *plainly transitory*. Bernard compared the presence of sugar in the liver to its formation in the germinating seed, assuming that saccharine matter was in some way indispensable or favorable to cell-proliferation. He does not appear to have appreciated the general significance of the series of chemical changes amid which sugar presents itself, nor to have seen that what is here observed is the analogue of similar processes continually advancing everywhere in the system, viz., the various processes of decompositive metamorphosis. Indeed, Bernard adopted his peculiar views, although he was quite aware that those above expressed were entertained as long ago as 1852, and set forth in an important though short memoir, communicated by Bernard himself to the Academy on the part of its author, Moleschott, Professor of Physiology in Heidelberg.

We must legitimately designate the sugar formed in germinating seeds, or in the process of malting grain, and in the buds and succulent parts of vegetables, as a product of retrogressive decomposition, quite as much so as in ripening fruits or stalks. In the animal economy sugar must be likewise regarded as one of the resultants of the nutritive activity by which new compounds are incessantly built up and decomposed; and it has been long known in part, and is now more fully appreciated than ever, that the chemistry of plants by no means directly contrasts with that of animals, but is *fun-*

damentally the same, though *disproportionately* active; the two kingdoms of nature not being *antagonistic*, but basially similar, their functions being *complemental* to each other. In substantiating this attitude of the vegetable and animal creation to each other, no one has been more efficient than Claude Bernard himself. The minute quantity of sugar demonstrable in the hepatic tissue, even if truly resident within the cells, must be regarded as a result of previous cell-action; and, moreover, no kind of cell-genesis has ever been shown, even approximately, to be dependent upon the presence of sugar anywhere in the economy, although something of the kind has been affirmed of fat.

Hepatic glucose should be more properly considered the product of disruptive movements involving the proteinoids of the blood, with much probability, those derived through the lymphatic system from the tissues at large. After passing through the lymphatic glands and mixing with the blood, and perhaps subserving some economical purposes, such as the elaboration of the characteristic ferments of the secretions, and being otherwise useful in a mechanical way, in virtue of the coagulable and osmotic properties of fibrinogen, what remains of the constituents of the lymph is deviated through the vena portæ to the liver, one of whose multiple functions seems to be to effect its final metamorphosis. The amount of hepatic sugar formed, according to these views, should vary with the quantity and *nature* of the food ingested, and with the activity of tissual nutrition. That the quantity daily fabricated in the liver is large, is unquestionable, as the glucose *found in the hepatic veins* must be held to represent not only what is derived from the metamorphosis of nitrogenous material brought by the blood, but almost the entire quantity of starch, gum, dextrine or saccharine matter consumed as *food*, these matters being absorbed by the portal radicles from the intestinal tract, and converted, as they pass through the liver, mostly into glucose.

Very different views have been entertained respecting the mechanism of the disappearance of glucose in the blood. For a good many years after the discovery of hepatic sugar, especially while such notions as those of Mialhe and Reynoso were dominant, it was attributed to direct pulmonary or hæmal combustion, promoted or not by the alkalinity of the blood. Bernard sagaciously rejected all such hypotheses, and declared it to depend upon a *fermentation* effected by the zymogenous properties of the blood in general, or by some special ferment present in that fluid, *especially rejecting the possibility of the occurrence of the vinous* or *alcoholic* fermentation, which he erroneously imagined could not take place without the direct addition of yeast to a saccharine liquid; he then showed that the injection of brewers' yeast into the veins of an animal is necessarily fatal. Assuming, therefore, that as yeast could not be present in the blood, and by an unfortunate extension of the assumption that *nothing sufficiently yeast-like to be competent to inaugurate the alcoholic fermentation* could exist in the economy, he decided by exclusion, though not very emphatically, in favor of the disappearance of glucose in the economy by the lactic-acid fermentation.

His experiments on this subject, as well as those of Pavy made prior to 1854, are imperfect, not being conducted under a definite hypothesis. Bernard submitted similar samples of blood over mercury to contact with various gases. He observed (*loc. cit.*, pp. 233, *et seq.*) that sugar disappeared more rapidly under arseniureted hydrogen than under nitrogen, oxygen, pure hydrogen, or carbonic acid. In these experiments it is not possible to discern any definite relation between the disappearance of the glucose and the action of any of the special gases.

Bernard leaves the question of the disappearance of sugar still involved in obscurity; and no systematic inquiry has as yet been addressed directly to this point, as far as I know, unless I may be allowed to refer to my own labors as an exception, in some degree, to this remark. Twenty-five years ago the occurrence of any true fermentative movement within the body, save in the cavities communicating with the exterior, was emphatically denied by nearly all, for the vitalistic philosophy had not yet been remanded to its just bounds, nor had its adherents learned the full scope of their own conceptions with respect to fermentative processes. It was held that, as a chemical process, fermentation was necessarily incompatible with life, or, at least, quite foreign to vital action. But of late years the progress of knowledge has been so rapid, that widely-diversified modifications of zymotic movements are now admitted to occur in living bodies, a general disposition, moreover, being manifest to ascribe many normal, and especially morbid, phenomena to influences of this order. Life itself has been lately declared by M. Pasteur to be founded in a *universal fermentation.*

The paucity of investigation directed toward solving the problem of the disappearance of sugar in the economy must be, consequently, to a great degree attributed to the influence of this bias of former years, and of Bernard's preconceived views. I have long appreciated the importance of this subject, and felt the necessity of its thorough investigation. Assuming that sugar was not directly destroyed by oxidation, but *resolved* in the blood by a fermentative process whose products were partly oxidized and in part eliminated unchanged, I endeavored to obtain an affirmative or negative answer to the question by subjecting fresh organic matters to distillation as soon as practicable after death. The results obtained were published first in 1859, and some years ago in this JOURNAL. A prime condition, however, of every fermentation, viz., *temperature,* is as yet almost unstudied in its effects upon the saccharification of glycogen in the liver and the disappearance of sugar in the blood. Notwithstanding the paramount and thoroughly appreciated control which heat exerts upon all chemical and so-called vital action, I can find isolated instances only of any kind of experimentation in this particular field. I have therefore made a number of experiments, certain of which are detailed further on, with the object of determining the influence of different grades of temperature, more particularly those normal to the animal or sample of blood operated upon, in causing the disappearance of sugar originally present, and also in promoting the transformation of glycogen in the liver into glucose, and of this, under the same circumstances, and apparently by a continuation of the same kind of action, into other matters still. As these experiments, though fewer than I could wish, are quite accordant with each other, and therefore seem conclusive, I proceed to detail them, beginning with those relating to the blood, and premising with a word or two touching the methods employed.

In testing blood for sugar, a small quantity, usually about half an ounce, is poured into a capsule, and an equal quantity of pulverized sulphate of soda added to it; upon ebullition with stirring, the solid matters become crisped, and a perfectly clear extract is obtainable by filtration. This is all that is requisite when dealing with *fresh* blood; but if the blood be stale, as the corpuscles become more or less disintegrated, yielding up their hæmatin to the serum, it is necessary still further to treat the extract once or twice with animal charcoal, which must be always freshly calcined.

The utmost care was observed with regard to the chemical purity of the reagents employed, and the cleanness of all apparatus. Distilled water, prepared under my inspection with unusual precautions, was alone used for all final rinsings and washings.

Fehling's liquid was the only sugar-test employed; it was prepared after the following formula, recommended by Dalton, and evidently more sensitive than that given by Bernard, viz.: Pure crystallized sulphate of copper, 50 grains, is dissolved in about 0.45 of an ounce of water; then 200 grains of *neutral* tartrate of potassa, dissolved in a little water, is mixed with 875 grains of a solution of caustic soda of sp. gr. 1.12; the copper solution is to be slowly added to this last, and the whole diluted to 93.5 cubic centimetres at 60° Fahr. A certain portion of the above solution was now still further diluted with an equal bulk of the above solution of caustic soda, and parcels, both of this latter solution and of the original one, containing twice as much copper-salt, were put up in glass-stoppered phials, holding an ounce each, filled as full as possible, as Dalton suggests. During every experiment the test-liquid was boiled in a test-tube, to ascertain whether or not it had undergone any change by keeping.

The alcohol-test was made by dissolving a quarter of a gramme of crystallized bichromate of potash in one hundred grammes of pure sulphuric acid, according to Leconte's formula.

I. Object.—*To determine the length of time required for* *the disappearance of sugar in mixed thoracic blood, at ordinary temperatures.*

February 14, 1876, 2.20 P. M.—About four ounces of the last portions of blood flowing from the neck of a slaughtered bullock was set aside in a beaker covered with a glass plate. Temperature of air, = 50°. A thermometer was stationed in the blood, which was found to contain an unusual quantity of sugar.

17th, 9 A. M.—Temperature of blood, 54°. Sugar still abundant. The temperature has varied between 52° and 58°.

18th.—The blood still contains sugar very notably; it begins to emit a faint odor of incipient putrefaction. Temperature of blood, 46°; of air, 50°.

RESULT.—*After four days, at a mean temperature of* 53°, *sugar was not wholly destroyed.*

II. OBJECT.—*Same as in* I.

A similar quantity of similar blood was set aside as before. The blood contained sugar in abundance.

February 15, 3.15 P. M.—Temperature of blood, 62°. At 7.15 P. M., temperature 57°.

17th.—Temperature of blood, 60°. Sugar is still present as abundantly as at first, it seems. The blood is perfectly fresh, rutilant, and devoid of any trace of unpleasant odor.

18th.—Temperature of blood, 52°.

19th.—Temperature of blood, 46°; of air, 52°. The blood has no unpleasant odor; the clots have not yet liquefied, but *sugar has entirely disappeared.*

RESULT.—*After ninety hours, at a mean temperature of* 55.4°, *sugar disappeared in this sample.* (The calculation of the mean temperatures has been made from notes too compendious for quotation here.)

III. OBJECT.—*Same as in* I. *and* II.

February 23, 2.40 P. M.—A similar quantity of similar blood set aside as before.

24th.—Temperature 51°. 6 P. M., temperature of blood, 70°. There is still a trace of sugar present.

25th.—11 A. M., temperature of blood, 58°. An exceedingly feeble trace of sugar. There is no beginning of putrefaction. The coagula have not liquefied; the crimson color persists, but the corpuscles have yielded up much of their hæmatin to the serum.

RESULT.—*After forty-four hours, at a mean temperature of* 63°, *sugar had almost disappeared, a mere trace still remaining.*

It is thus seen that, at temperatures between 50° and 60°, the sugar normally found in mixed thoracic blood does not *usually* disappear until signs of incipient putrefaction become manifest, though it *may do so.* This result is quite in accord with numerous similar experiments of my own, as well as of others more recently, in which sugar was found in much diminished quantity or wholly absent, in blood similar to that above used, after it had begun to exhale an odor of sepsis. But it is well worthy of notice, that sugar may quite disappear, as in No. II., or at least become so diminished in quantity as to fail to respond to very careful and delicate testing, at a mean temperature of 55°, while as yet there is no reason to affirm the existence of what is commonly meant by *putrefaction,* although as much as four days have elapsed.

Such being the influence of ordinary temperatures upon the disappearance of sugar in blood, let us inquire into the effect of a temperature of the same grade as that proper to the blood in the body. The following experiments are therefore cited:

IV. OBJECT.—*To determine the time requisite for the disappearance of sugar in fresh blood maintained at its normal temperature.*

February 5, 1876, 5.25 P. M.—Young he-goat in fine condition. Ligation of vena cava in abdomen and in thorax; vena portæ tied. The animal expired a few minutes later. Temperature, taken with self-registering thermometer deep behind the liver, in the neighborhood of the vena cava, 103°. After two hours the liver with its ligated vessels was exsected for purposes not connected with the object of this experiment.

8.40 P. M.—Three or four ounces of the blood found in the excavation left by excision of the liver and part of the diaphragm, and derived from the heart, the ascending and descending cavæ, and the cut end of the portal vein, containing sugar in notable quantity, was placed in a covered beaker set in a water-bath and maintained with great care, a thermometer being placed in the blood, at a temperature of 105°. When this blood was collected its temperature was 100.25°.

9.40 P. M.—Sugar very much diminished in quantity.

10.50 P. M.—Sugar still discernible.

11.40 P. M.—Sugar has entirely disappeared. Reaction of clear extract *neutral* or *faintly acid*.

RESULT.—*At a temperature of* 105°, *sugar disappeared after five hours from death, and three hours after extraction of liver and blood. The two hours following death were doubtless influential in setting in motion those dispositions of the blood or of the sugar ultimately causing the disappearance of the latter.*

V. OBJECT.—*Same as in* IV.

February 9, 1876, 4 P. M.—Eight ounces of mixed blood, last portions from the throat of a slaughtered ox, containing sugar abundantly an hour and a half after death, was maintained, as before, at 105°.

5 P. M.—Sugar present in diminished quantity.

6 P. M.—Sugar in very small quantity.

7 P. M.—Barest trace of sugar.

8 P. M.—Not a trace of sugar, even on prolonged ebullition; reaction of clear extract about neutral.

RESULT.—*At a temperature of* 105°, *sugar disappeared in about five and a half hours after death, and four hours after beginning the experiment.*

VI. OBJECT.—*Same as in* IV. *and* V.

February 14, 1876, 2 P. M.—Ox slaughtered; similar sample of similar blood treated as before. Temperature of blood when flowing from wound, 103°; when received, 90°; coagulated; sugar abundant.

2.40 P. M.—Set in beaker and placed in water-bath.

5.30 P. M.—Sugar in very small quantity.

6.50 P. M.—Barely a trace of sugar.

7.45 P. M.—Sugar has entirely disappeared.

RESULT.—*Sugar disappeared in this blood, kept at a mean temperature of* 105.27°, *within five hours and three-quarters after death, and five hours after inception of experiment.*

VII. OBJECT.—*Same as in* IV., V., *and* VI.

February 15, 1876.—Bullock slaughtered at 2.30 P. M. Temperature of blood when received at 3 P. M., 80°. Eight ounces set in beaker.

3.15 P. M.—Temperature of blood, 103.5°. This blood was carefully maintained at temperatures ranging between 103° and 105°. The presence of a notable quantity of sugar was determined.

6.15 P. M.—Temperature 105°. There is still a feeble trace of sugar.

7.15 P. M.—Temperature 105°. Sugar in still diminished quantity.

RESULT.—*Sugar almost wholly disappeared after four hours and three quarters from the moment of death, and four hours from inception of experiment, at a mean temperature of* 104°.

VIII. OBJECT.—*Same as in* IV., V., VI., *and* VII. *The blood will, moreover, be treated with* H_2S. *to test the influence of this gas upon the disappearance of glucose at physiological temperatures.*

February 23, 1876, 2.15 P. M.—Ox slaughtered. Temperature of blood received at 2.40 P. M., 90°.

About two quarts of this blood, containing sugar by determination in moderate quantity, was poured into a glass bottle, and a stream of H_2S. passed through it after the bottle had been set in the water-bath. The blood filled nine-tenths of the capacity of the bottle. The clots were broken up by agitation. The blood became nearly black. The bottle was lifted out of the bath and well shaken several times, while the gas was passing through its contents. The temperature of the blood was maintained at 104° with great care and success.

5.50 P. M.—Sugar nearly disappeared.

6.30 P. M.—Sugar wholly absent.

RESULT.—*Sugar disappeared in this blood in four hours and a quarter after death, at a temperature of* 104°, *and within three hours and fifty minutes from inception of experiment.*

The addition of H_2S. did not prevent the disappearance of sugar, nor perceptibly hasten it. As sugar disappeared as usual, notwithstanding the abolition of the blood-oxidizing power resident in the corpuscles, this disappearance cannot be due to direct oxidation. Sugar is thus seen to disappear at physiological temperatures in one-twenty-fifth of the time required for its disappearance at temperatures ranging between 50° and 60°; but, to demonstrate the matter still more emphatically in a single experiment, the following counterproof was executed.

IX. OBJECT.—*Counterproof of* I. *to* VIII. *inclusive.*

February 27, 1876, 2.20 P. M.—A portion of mixed thoracic blood containing sugar by examination was set aside at a mean temperature of about 58°. After four days there was a faint odor of putrefaction, but the blood still contained sugar, though in diminished quantity.

9.50 A. M.—The blood was set in a beaker placed in the water-bath, and was carefully kept at 104°.

1 P. M.—Sugar is wholly absent.

RESULT.—*After ninety-six hours, sugar was not destroyed at a mean temperature of* 58°*; but, when the blood was heated to* 104°*, sugar disappeared within three hours, and most probably much earlier.*

From the preceding experiments it might be supposed that, inasmuch as out of the body, in blood kept in covered vessels at normal temperatures, sugar disappears in about five hours, it would likewise do so in the blood of the liver and thoracic vessels and lungs, the organs having been left undisturbed after death, and the somatic temperature maintained, as nearly as practicable, within a corresponding period of time. The following experiment upon this point was therefore instituted, section of the spinal cord above the origin of the phrenic being chosen as a mode of death, in order to extinguish life promptly, and for the purpose of inducing turgescence of the hepatic and pulmonary capillaries by vaso-motor paralysis, so that as much blood as possible might be caused to accumulate in those parts of the vascular system in which sugar is normally most abundant.

X. OBJECT.—*To question the disappearance of sugar in the blood of the hepatic veins, vena cava ascendens, right side of the heart and lungs, in an animal maintained after death at nearly its normal temperature for several hours.*

January 18, 1876, 1.40 P. M.—A large dog, weighing fifty pounds; fed on raw beef-steak; animal in splendid condition.

5.30 P. M.—Animal in full digestion; killed by driving a chisel between the third and fourth cervical vertebræ, an incision being previously made down to the spinal column. The diaphragm was instantaneously paralyzed, with all parts below the point of section, and life was very soon extinct.

6 P. M.—Temperature in rectum, 105°; in bottom of wound, 104.25°. Temperature of air, 63°. The animal was placed upon a board directly in front of a hot stove, and kept quite warm.

7.20 P. M.—Temperature in rectum, 103.25°; in wound, 100.25°. A catheter was introduced into the bladder, but no urine flowed.

8.30 P. M.—Temperature in rectum, 100.25°. The front of the thorax was removed, and the liver, lungs, and heart, removed. The liver was very large and dark. The lower lobe of the right lung presented a similar appearance. The heart was gorged with blood still fluid, in *diastole*. All the blood found in the right pleural cavity was extracted; it was found heavily charged with sugar.

RESULT.—1. *The thoracic blood contains sugar in abundance three hours after death, even when the animal temperature has been artificially conserved, as nearly as possible; the viscera, meanwhile, not being disturbed.*

It cannot be supposed, however, that a steady decomposition of glucose, like that noted in the foregoing experiments out of the body, had not been at least equally active within it. Much of the glucose found in the experiment in the thoracic blood should properly be credited to a *post-mortem* continuation of hepatic glycogenesis. A considerable quantity of sugar had doubtless accumulated in the hepatic blood, which had been forced out of the hepatic veins, through the divided cava, into the right side of the thorax, by the procedures necessary for extracting the viscera.

2. *It must be also concluded that during a certain time not less than three hours after death, at physiological temperatures, glycogenetic action still continues in the liver, or, at least, more strictly, the saccharification of the previously-existing store of glycogen is not interrupted.*

This result harmonizes with what is already known upon this subject, though only for considerably shorter periods of time, and for bits of liver already exsected, and induced me to examine the disappearance of sugar in the liver-tissue itself, both at atmospheric and physiological temperatures, in the following experiments:

XI. OBJECT.—*To determine the time of disappearance of sugar in an exsected portion of liver-tissue at the atmospheric temperature.*

February 28, 1876, 2.20 P. M.—Ox struck down. A self-registering thermometer plunged into the centre of the liver at the moment of its extraction from the carcass showed 106°. Temperature forty minutes later, when received, 80°.

3.30 P. M.—A piece weighing four ounces was set aside in a covered glass beaker, enough water (distilled) being poured into the beaker to cover the bit of liver. The whole was abandoned to the atmospheric temperature, a thermometer being set in the beaker. Sugar was abundant.

29th, 9 A. M.—Temperature of liver, 56°. No sign of fermentation. There is not the first bubble to be seen, or faintest frothiness of the surface. Reaction neutral, or faintly alkaline.

RESULT.—*In this bit of liver, after sixty-six hours at a mean temperature of* 60°, *sugar was still abundantly present, though in diminished quantity.*

I have frequently observed that in morsels or masses of liver-tissue, sugar does not disappear for several days at moderately low temperatures. At 70° or 80°, however, acidity sets in early; and it is well known to butchers and housekeepers that liver does not keep well in summer. True decomposition follows this acidity; the liver changes color, softens, and on distillation will be found to contain a notable quantity of *alcohol.* (*See* experiments of mine quoted in this JOURNAL for June, 1872.) Bernard noted the disappearance of sugar in portions of liver set aside, at ordinary temperatures; also the intensely acid reaction of such bits of liver, marked enough to cause vigorous effervescence with a solution of bicarbonate of soda.

It became proper, in the next place, to investigate the phenomena of the disappearance of sugar in portions of liver maintained at somatic temperatures, as was done for the blood. The following experiments, converse of the last, were therefore conducted.

XII. OBJECT.—*To test the phenomena of the disappearance of sugar in liver-tissue out of the body, maintained, immediately after death, at its normal somatic temperature.*

February 28, 1876, 2.20 P. M.—Ox slaughtered. Thermometer plunged into centre of liver at the moment of extraction showed 106°. Temperature, when received forty minutes later, 80°. Sugar abundant.

3 P. M.—Eight ounces of this tissue was placed in a beaker, with an equal quantity of pure distilled water; the whole set in a water-bath. The liver was not comminuted.

3.10 P. M.—Temperature of liver, 106°. Portion tested very rich in sugar. As 106° was the normal temperature of this liver, the portion experimented upon was maintained steadily thereat.

(On page 366 of Bernard's "Leçons," for 1854 and 1855, will be found the details of an experiment in which the liver was hashed. It was also *boiled*, thus totally interrupting, for the time at least, the action of the natural fermentative powers which it is the object of this experiment to investigate. Bernard noted the increase of sugar in liver-tissue hashed and mixed with a little water, and maintained at temperatures varying between 104° and 122°. The normal *post-mortem* accumulation he found to be singularly stimulated by this digestion. The liver he employed was derived from a rabbit killed some ten hours after section of the spinal cord above the brachial enlargement. In *this animal*, in consequence of the progressive fall of temperature which ensues upon the section of the cord, the liver temporarily ceases to show the presence of sugar, glycogen meanwhile accumulating.)

3.45 P. M.—The reaction of the liver is about neutral; it sinks in the water.

5.15 P. M.—The superjacent liquid is already distinctly acid.

6 P. M.—Sugar is abundant in a morsel of liver exsected from the middle of the mass.

7 P. M.—The temperature is steadily maintained.

9 P. M.—Sugar far more abundant. (These comparative estimates of quantity are reached by using equal portions of

the solid or fluid matters, and comparing the depth of the sediment of oxide of copper and color of the extract after boiling with the test.)

The superjacent liquid is still more distinctly acid. (The following unexpected and very interesting phenomena were then observed:)

A fermentative movement is in full and rapid progress. The liver-masses have swollen greatly. The circumnatant fluid, at first sanguinolent though transparent, and without any sign of flocculence, is now full of large flocculi which are driven about by the fermentative commotion. The surface is covered with a thick whitish scum, like that seen on the surface of the fermenting contents of a brewer's vat. The bottom of the beaker is strewed with flocculent masses of coagulated material and liver *débris*, some of which rise quickly to the surface, borne by adherent globules of gas, falling down again when this escapes. The masses of liver have quite changed color, being now *whitish;* they yield a whitish foam when a cut surface is squeezed. The contents of the blood-vessels are, moreover, spontaneously forced out as a similar whitish foam from the recesses of the tissue, by the pressure of the gas generated within the smaller vessels. Where a cut surface lies in contact with the wall of the beaker, it is seen through the glass to be covered with innumerable fine bubbles, evidently springing out of the liver-substance itself. The liver-tissue is unmistakably the seat of an exceedingly active fermentation.

10.15 P. M.—The fermentation commotion is still more marked. A lighted match put under the glass plate covering the beaker is promptly extinguished. The liver is now quite acid to test-paper. It crepitates between the fingers, showing the presence of gas and the progress of the fermentation in its interior. Sugar was not tested for again.

The liver masses and circumnatant fluid were placed in a distillatory apparatus heated by a bath of chloride of sodium, and the first distillate distilled down to 1.5 cc. The successive distillates were purified by filtrations through animal charcoal and by proper neutralizations. The first few drops of the primary distillate were strongly acid; this acidity continued for some time, as the distillation advanced. Tested with the chromic-acid test, the final distillate assumed a bright emerald-green color, the reaction with this test being accomplished without other heat than that generated by admixture of the test with the distillate.

RESULT.—*Within a period of six hours after the systemic temperature was reëstablished a fermentative movement began; this was not permitted to complete itself, for fear of destruction of its product by souring.*

The acidity observed was shown to be due, in great part at least, to the formation of a volatile acid, which under the circumstances could scarcely have been any other than the acetic or formic acids. The acid reaction, which became evident after two hours, must be attributed to the same acid formed at the expense of previously-existing traces of alcohol, and probably in a *slight degree* to the simultaneous generation of some lactic acid. (*See* June number of this JOURNAL for 1872, p. 589, Experiment XXVII.) The fermentation was indisputably the alcoholic, and not to any appreciable extent the lactic, nor the butyric; for the gas evolved was shown to be carbonic acid, and not hydrogen, as in the case of the butyric fermentation (were this supposable under the conditions); while in the lactic-acid fermentation, which proceeds best at temperatures altogether lower than those normal to the human body, no gas of any kind is evolved. Besides this, the presence of alcohol in the mass of the liver and circumnatant fluid was ascertained by distillation and appropriate testing. Instead of *disappearing* at the temperature maintained (106°), sugar became more and more abundant, in virtue of a progressive conversion of the hepatic glycogen into glucose, the latter substance, even in the midst of the liver, passing at once into fermentation. The presence of ferments or of a proper fermentative disposition of the blood in the liver, capable at somatic temperatures of converting glycogen into glucose, Bernard has already affirmed; the influence of a proper temperature in this respect is fully shown by this experiment; and still further, the power of the same or similar ferments in causing glucose so formed to break up by the alcoholic fermentation into alcohol and carbonic acid (and other subsidiary matters), must be regarded as fully established.

XIII. OBJECT.—*Same as in* XII., *and to test the agency of a previously-existing tendency toward fermentation upon the changes of hepatic sugar and glycogen in the liver-tissue.*

February 29, 1876.—The portion of liver-tissue, in Experiment XI., which had been exposed to an average temperature of 60°, was found to be still rich in sugar after eighteen hours. At this time its reaction was neutral, or faintly alkaline; it emitted no odor whatever, nor were there any bubbles or scum either upon the liver itself or on the surface of the distilled water in which it lay immersed.

10 A. M.—Under these conditions the larger portion of this liver, with most of the superjacent liquid, was placed in a beaker set in a water-bath, and maintained with great care and success at 106°.

12.45 P. M.—Froth beginning to form on edges of the liquid.

1.10 P. M.—Fermentation plainly in progress.

2 P. M.—Fermentation in full progress.

4 P. M.—Liver in full fermentation, which also advances in the circumnatant fluid, quite as actively as if it had been *an artificial solution of sugar to which yeast had been added.* Reaction strongly acid. The temperature (106°) is steadily maintained.

Three-fourths of the capacity of a three-quarter-inch test-tube of the gas evolved by this fermentation was collected over water by a small pneumatic contrivance consisting of an inverted funnel and eductory pipe of india-rubber, terminating in a glass tube, which reached up into the test-tube filled with water, and set, mouth downward, in a small dish containing water. The gas thus collected, by two successive trials, instantly extinguished a blazing splinter of wood. It was carbonic acid.

5 P. M.—The fermentative commotion is over.

8 P. M.—The supernatant fluid of this sample was tested for sugar; *not a trace of that substance could be detected.* Another portion of the same fluid was treated with freshly-calcined animal charcoal, filtered, boiled in a test-tube whose opening was firmly closed by the thumb; filtered anew through animal charcoal; came through perfectly clear; tested with chromic-acid test for alcohol; the fluid became at once of a

vivid emerald-green hue, without further heating than that attendant upon the addition of the test itself to the filtrate; *alcohol* was therefore present in considerable quantity.

RESULT.—*In this sample of liver no change occurred in eighteen hours, sugar being abundant; but, on digesting the same specimen at* 106°, *fermentation began in rather less than three hours, and ran its course within seven or eight hours.*

This fermentation was the *vinous* or *alcoholic*, and was preceded and followed by marked acidity, the primary acidity being most probably due to traces of lactic acid formed in the tissue during the eighteen hours it had remained in the beaker at a temperature of 60°; the secondary acidity being due to acetic acid almost entirely.

XIV. OBJECT.—*Same as in* XIII.

A bit of the same liver-tissue (of Experiment XI.) was allowed to remain at a mean temperature of 60° for sixty-six hours. The presence of sugar in diminished quantity was determined. The liver had begün to emit a faintly-unpleasant odor.

It was now placed in a beaker with about an equal bulk of the fluid around it, and the whole set in a water-bath and maintained carefully at 106°.

The fermentative movement began almost immediately, and was entirely over within *one hour*. Tested for sugar upon the cessation of fermentation, *not a trace of that substance* could be found. The gas evolved was collected, and shown to be carbonic acid. The fluid, purified, as in the foregoing experiment, by filtration and boiling under pressure, when tested for *alcohol*, revealed the presence of that substance in abundance.

RESULT.—*A bit of liver-tissue exposed to an atmospheric temperature varying betweeen* 56° *and* 60° *did not lose all its sugar after sixty-six hours; but, when digested at the somatic temperature of* 106°, *the glucose it contained entered into the alcoholic fermentation with greater promptness than ever, which ran its entire course within one hour.*

This greater promptness and more rapid accomplishment of the fermentation can only be attributed to the influence of a fermentative disposition which had been gradually rising in potency during the period elapsing from death to the time of the experiment—doubtless dependent upon or associated with the initiatory changes of a septic character, which are noted as having already become manifest. From the suddenness of the fermentative outburst and the completeness and rapidity of its accomplishment, moreover, we have good reason for supposing that, under the influence of an inceptive sepsis, the *glycogen* which this sample of liver had originally contained had been wholly or mostly converted into glucose when the mass was heated to 106°; a case, therefore, distinctly differing from that where perfectly fresh liver-tissue was digested at its proper somatic temperature; for here the glycogen was very plainly converted into sugar both previously to the establishment of the vinous fermentation and *pari passu* with its progress.

The foregoing experiments are few in number, but may prove suggestive; they seem to warrant the following conclusions:

1. Sugar disappears in samples of mixed blood very slowly at temperatures ranging between 50° and 60°, and usually does so just after the commencement of putrefaction; though, if its quantity be small, it may entirely disappear before any sign of putrescence becomes manifest.

2. On the contrary, sugar disappears in the same or similar samples of blood within from four to five hours, if the temperature be steadily maintained at the range proper to the blood during life.

3. Sugar requires from four to five hours for its disappearance in blood *after death;* we must believe, however, that the conversion upon which its disappearance *during life* depends is accomplished with vastly greater rapidity, for the transit of the blood through the lung-capillaries scarcely occupies more than a second and a half of time, according to Valentin's estimate (*see* Todd & Bowman's "Physiological Anatomy," p. 714); and we know that by far the greater part, though not all the sugar, is destroyed within the compass of the pneumo-cardiac circulation.

This must be taken to signify that, in the samples of blood experimented upon, the *ferment* inducing the disappearance of the sugar—supposed to be inherently the same as that efficient during life in the conversion of the same substance (*in the same fluid and at the same temperature*)—is either very much less abundant than during life, or requires to be reinforced or generated *de novo* by the *coction* maintained, or is again compelled to act without the concurrence of other conditions, which, within the economy, render its agency so wonderfully effective.

4. In *liver-tissue* sugar does not disappear at ordinary temperatures until several days have elapsed and incipient putrefaction has begun. At this time, as I have elsewhere shown, alcohol in no small quantity may be obtained by concentrative redestillation; a volatile and probably a fixed acid also being likewise abundantly formed in the mass of the tissue.

5. The store of glycogen originally present seems to be more or less completely transformed into glucose during the sojourn of the tissue at ordinary temperatures.

6. If the liver be digested at the temperature *normal to it in the body whence it was taken,* the quantity of sugar steadily increases during a certain period, in consequence of a progressive conversion of the glycogen into glucose. This glucose, as soon as formed, enters upon the *vinous* fermentation, and not the *lactic.*

7. The efficiency of a normal temperature in causing the disappearance of sugar in fresh blood, as shown by these experiments, almost conclusively indicates that this disappearance is due to a fermentative mechanism. It may be consequently affirmed, on presumptive grounds, that *during life* sugar is likewise destroyed by a fermentative process; and it is reasonable to conclude that the type or mode of fermentation is the same during life as in newly-drawn blood. As incipient sepsis, moreover, is competent to cause the destruction of sugar when the somatic temperature is not maintained, while the maintenance of this temperature before septic change has begun is able to effect the same thing, we are forced to admit that the fermentation in question is induced by the agency of a zymogenous disposition proper to the blood, which *probably* exists during life, but is *certainly* active after death, being developed by the heat maintained, which is fundamentally of the same nature as the septic disposition,

and naturally culminates in declared sepsis; *there is no special blood-ferment.*

8. As a corollary to the above, it must be concluded that sugar is *not* destroyed by any process of direct or indirect *oxidation* in the blood after death, nor *presumably*, therefore, during life. When the oxidizing power of the blood is annulled by the action of sulphuretted hydrogen upon the corpuscles, we have seen that sugar disappears as usual, provided the proper temperature be maintained.

9. *Immediately after death*, at the normal temperature, sugar accumulates in the liver-tissue by a mechanism plainly identical with that which occurs *abnormally* when the circulation through the liver is impeded, viz., by a progressive and unceasing saccharification of glycogen, this saccharine product not being removed, as it should be, by the uninterrupted flow of the blood. This saccharification must be effected by the same ferment in both cases. After a certain period of *coction* or digestion, the glucose generated enters upon the *vinous* or *alcoholic* fermentation, and is thus converted into alcohol and carbonic acid, and some other matters of less importance. This period of digestion is evidently analogous to that elapsing between the addition of ferment to a saccharine liquid and the beginning of fermentation, or to the interval of repose which is followed by fermentation in liquids of fermentable natures, to which yeast has not been added; for yeasting is by no means absolutely requisite, though it hastens the fermentative process, and promotes and regulates its accomplishment. Fermentation is always preceded by such a period of apparent quiet, of longer or shorter duration, which may be termed the period of "*fermentative incubation.*" In liquids containing both nitrogenous and saccharine matters, the vinous fermentation is followed by the *acetic*, and this by the *septic* or putrefactive fermentation.

It would seem unreasonable to suppose that sugar disappears in the economy by a mode of conversion foreign to that which obtains in the fresh tissue of the liver under conditions simulating those of normal action in no small degree. Since, in the latter case, we find that sugar enters into the alcoholic fermentation, as we may say, *spontaneously*, its conduct seems to indicate its conversion within the body by the same process, with the same products, viz., *alcohol* and *carbonic acid*. This view I have endeavored to substantiate experimentally, supposing the alcohol so generated to be promptly converted by oxygenation in the blood into water and carbonic acid, which, with the carbonic acid derived from the sugar, escapes by the lungs and skin. Binz has very lately shown that small quantities of alcohol are *absolutely* destroyed in the blood; and the researches of Anstie, Dupré, and others, on this subject seem to me distinctly confirmatory of my own conclusions. The principal seat of this fermentative process in the economy is the capillary circulation of the lungs, where (*after the addition of the lymph*) conditions evidently exist so peculiarly favorable to the disappearance of sugar that the *fermentation* in question, as we may be allowed to term it, is mostly accomplished before the sugar-bearing stream reaches the left side of the heart.

Bernard has constantly affirmed that glucose is not to be found in the livers of dissection-room or hospital cadavera; this can hardly be strictly true, nor was it meant, probably, as an absolute statement; but he never failed to find sugar in the liver of executed criminals. The liver of a newly-executed criminal corresponds in all respects to that of a healthy animal subjected to experiment; while in patients dying in hospital or private practice, if at the time of death glycogen or sugar existed in the liver, both these substances would have almost surely disappeared during the interval elapsing between death and the necropsy. The *mode* of death must be also significant in this connection. In febrile maladies sugar cannot be detected in the liver of animals immediately after their sacrifice, and is presumably absent under similar circumstances in the human subject. (In an autopsy made of a hospital-patient dying of yellow-fever on the fourth day, I could not detect sugar *thirty minutes* after death.) This ante-mortem disappearance of sugar seems attributable to a conversion of glycogen into sugar, and of this into its characteristic resultants, induced with abnormal facility by that enhanced zymotic disposition of the blood and system generally which plainly underlies the febrile state. In other cases still, exhaustion with or without depression of temperature, and consequent impairment or abolition of the nutrient processes, are no doubt equally effective in causing the absence of sugar and glycogen from the liver at and after death.

That sugar present in the human body after death is destroyed mostly, if not wholly, by the vinous fermentation, is scarcely to be doubted. The large lymphatic vessels belonging to the *deep* set which emerge from the transverse fissure of the liver to join the lacteals, always contain sugar in healthy animals, which Bernard supposes to be derived by direct absorption from the hepatic stroma. "They are often filled with yellow lymph, and are sometimes found distended with gas in cases of commencing putrefaction," says Cruveilhier ("Anatomy," American edition, p. 624). This gas can hardly be any other than carbonic acid, resulting from the fermentation of the glucose contained in such lymph after death by injury, or consequent upon morbid conditions which have not entirely interrupted the normal processes of nutrition.

ART. II.—*On the Antiseptic Treatment of Wounds, and its Results.*[1] By ROBERT F. WEIR, M. D., Surgeon to the New York and Roosevelt Hospitals.

[*Concluded from December Number.*]

CASE VI.—*Compound Fractures of the Right Thigh and of the Right Leg, with a Lacerated Wound of Left Leg*, in a girl of fifteen, caused by a fall from the roof of a three-story house. The right femur was fractured in its middle third, the wound was transverse, two and a half inches long, and on the outer aspect of the limb. The tibia and fibula were broken in their upper third, and the ends of the fractured bones protruded from the wound in front. A laceration, four inches long, existed over the left ankle and leg. All dressed antiseptically. On the second day dressings changed; again on the fourteenth and twenty-seventh days, when only simple granulating ulcers were found, and all closing steadily. Wound of right leg was then dressed openly to admit of extension by weight and pulley, and subsequently the other wounds were similarly treated, as it had been found, in other cases, that the Lister treatment was open to the objection of tardy closure, and that the time had now arrived when it was better to leave it off, or resort to strapping, red-wash, etc. (This sluggishness of repair has been noticed by

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[1] Read before the New York County Medical Society at the meeting held November 26, 1877.

Lister, Dittel, Volkmann, and others, and is met by either abandoning the treatment, or by using salicylic acid or boracic acid on the wound, or, as I have found serviceable, by using the carbolized instead of the ordinary red-wash alluded to above—i. e., sulphate of zinc, grs. ij; comp. spts. lavender, ʒj; water, ℥ss; sol. carb. acid 1 to 20, ℥ss, the antiseptic dressings being continued.) The patient was up and about at the end of the ninth week, when she accidentally refractured her thigh. Two weeks later firm union had taken place. During the course of this very encouraging case, the temperature, except on the sixth day, when it rose to 102°, did not exceed, at any other time, 101°, and was generally below that level. No swelling or pain was seen or complained of at any time, except in handling the limb. The discharge was purulent, odorless, and slight in amount.

Case VII.—*Another Compound Fracture of the Thigh, with Simple Fracture of the Ulna*, was admitted to the Roosevelt Hospital July 25, 1877. It occurred in a boy of fourteen, and was caused by a fall of about twenty feet. The ends of the femur protruded through the anterior part of the thigh, about its middle. The bone was found comminuted, and a fragment one inch long, and involving more than one-half the shaft, was removed. The wound was dressed antiseptically by the injection, by means of a soft rubber catheter, of a 1 to 20 solution of carbolic acid, and the other steps of the method carried out, excepting that, through misconception on the part of the house-surgeon, a drainage-tube was not introduced. The next day—26th—his temperature was 104°, and he was delirious. On examination, I found that the wound was closed, and that a collection of several ounces of bloody inodorous serous discharge had occurred. The wound was therefore enlarged, as its edges had been strongly approximated by the swelling that had ensued, a drainage-tube of good size introduced, the cavity well washed out with the strong solution, and the dressings reapplied. The same evening the temperature had fallen to 99⅘°, and although it rose the next day to 102⅕°, with a continuation of the delirium, yet after that time it sank to 99⅘°, above which it did not again pass during the further progress of the case. The subsequent discharges were slight, without odor, and non-purulent, until the seventh day, when pus appeared. The swelling also disappeared, and the limb had an uninjured appearance. By the twentieth day only a simple granulating ulcer remained with a short drainage-tube, which latter was done away with on the thirtieth day. As far as the wound went the patient did very well, but in this instance non-union occurred, which has continued up to the date of the last record of the case, October 1st.

Whether this was a condition that might have happened under any treatment, or whether it resulted from the destruction of at least one inch of the bone, cannot, of course, be determined. Volkmann[1] reports that this result—non-union—has obtained several times (three times in seventy-five cases) in the fractures treated antiseptically by him, and that it is probably due to the total arrest of the inflammatory œdema, which is always present even in a simple fracture, and which plays so important a part in the process of repair. What, in addition, materially contributes to the non-appearance of the œdema with him, is the quite firm pressure with which he purposely secures the antiseptic dressings. He therefore deems it advisable, as soon as possible, to immobilize the fractured limb, and preferably by coaptation-splints.

Cases VIII. and IX. were respectively operations for the relief of strangulated femoral (omental) and inguinal (intestinal) hernias. One, the femoral, required opening of the sac, and the exposure of quite a large extent of omentum to the influence of the spray, and the other was reduced without dividing the peritoneum. Both did extremely well, with entire union of the wounds on the seventh and fourth days.

Case X. *Ovariotomy*, for multilocular cyst weighing thirty-eight pounds. The carbolic solution used for spraying with in this, as in other cases, was made from absolute phenol, which is less irritating[2] and more soluble than any other form, and is the only kind used by Lister. In this operation—first done antiseptically, it may be stated, by Nussbaum in 1875, and subsequently by Keith, Olshausen, and others—it will be remembered, it is customary to place a sponge or cloth over the intestine when passing the abdominal sutures, in order to absorb the blood effused by the needle. In this instance, a cloth wet with a 1 to 40 solution was resorted to for this purpose, and remained several minutes *in situ* without giving rise to any inflammatory reaction. The wound was closed with catgut sutures and without a drainage-tube, and the other dressings applied, with numerous extra layers on each side of the clamp, so as to make firm pressure with the bandages. The strong salicylized cotton was stuffed in all places needing protection, as over pubes, and adjacent to bony points, etc. The patient did very well, and was out of the house on the twenty-first day.

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[1] "Samm. klin. Vorträge," Nos. 117, 118.

[2] Obtained at Caswell, Hazard & Co.'s, New York.

[3] The less irritating salicylic spray, 1 to 300, might be used if deemed advisable. No special risk of carbolic-acid poisoning is met with in ovariotomy, as was supposed by Funk. This poisoning rarely occurs. Volkmann, however, had one fatal case from this cause, but Bardeleben believes that it arises from the use of impure acid. The acid has been detected several times in the urine by its black coloration in patients who were otherwise doing well.

CASE XI. *An Exploratory Incision through the Abdominal Walls for a doubtful Ovarian Tumor, by Dr. Mason.*—The case was ascertained to be one of hydatid tumors, and the incision, three inches long, was closed by catgut sutures—all done after the antiseptic method. Primary healing took place promptly in the principal portion of the wound, but some gaping occurred in its upper part from the early melting of the catgut sutures. In fact, wherever there is likely to be tension, or the support is to be given for any length of time, the carbolized silk or the wire "relaxation" suture should be employed.

CASES XII. and XIII. *Two Ligations of the Femoral Artery in Scarpa's Triangle for Popliteal Aneurism, by Dr. Markoe, at the Roosevelt Hospital, with Primary Union of the Incision.*—Dressing complete, except that the drainage-tube was not used.

Some recent observations reported at the Clinical Society in London,[1] by Mr. Bryant, show that the catgut ligature accomplishes the division of the internal and middle coats, like the silk ligature, and that, where the wound is treated openly, sloughing of the outer coat can also occur. In four cases where a *post-mortem* examination was made, this latter was met with once. In the cases that died on the twelfth, thirteenth, and nineteenth days, the ligature had melted away, and in the last instance a small knot was the only part left. In a case wherein I ligated, with a fatal result, the carotid and subclavian arteries simultaneously for innominate aneurism, employing a triple knot to secure the ligature, I was unable to distinguish, on the fourteenth day, any trace of the catgut used, and the vessels were found satisfactorily occluded by the divided middle and internal coats. Only rarely does the ligature give way in a few hours, as has been remarked by Callender, Spence, Smith, and others. Probably this is by the slipping of the ordinary reef-knot; as, in one of Mr. Bryant's cases, in which death occurred fourteen hours after the ligation, the catgut was found intact, and the vessel occluded above and below. If, joined to this reliable obstruction of the artery, we can have, by the aid of the antiseptic dressing, primary or rapid union, secondary hæmorrhage and other risks can be almost done away with.

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[1] *Lancet*, October 20, 1877.

CASE XIV. *Unsuccessful Nerve-stretching for Tetanus.*—The incisions, each two inches long, for exposing and stretching the sciatic and anterior crural nerves, were made under the antiseptic spray and by the usual dressings. These were changed on the sixth day, and the wounds were found healed, except at the points of exit of the drainage-tubes. These latter were removed, and a few days later, when exposed, the incisions were healed. The amelioration of the tetanic spasms and trismus lasted for nearly eight days, when they recurred, and the case terminated fatally on the fourteenth day after the operation.

CASE XV. *Exsection of the Fourth Metatarso-phalangeal Joint*, for severe neuralgia of the foot and leg, was done on a girl of twenty-two, July 26, 1877, after the method suggested by Dr. Morton, of Philadelphia, viz., by an incision two and half inches long on the dorsum of the foot, and under the antiseptic plan. The wound healed by first intention, save, as usual, at the drainage-opening, which closed August 13th, no general or local reaction having at any time shown itself. She was discharged from the hospital, free from pain, August 21st.

CASE XVI. *Unsuccessful Attempt to reunite Old Divided Tendons.*—I should not have undertaken this operation, except that my previous satisfactory experience with Lister's dressing had given me the confidence that I should not submit the patient to any risk of further impairment by the operation. The man had had the proximal phalanges of the middle and ring fingers of the left hand cut across the middle of the palmar aspect by a knife, some eight weeks prior to his admission to the hospital. The wound, he said, healed readily, but he found he had lost the power of flexing the fingers more than 10° to 15°. Under the spray I made a longitudinal incision in each finger, and found the proximal end of the deep tendon just within the palm, and the distal end above the first phalangeal joint, leaving a space of quite an inch in which there was total absence of tendon, nothing but a reddish friable band being found there. It was impossible to approximate the ends, and the operation was therefore abandoned. Under the gauze dressing, applied as usual, but enveloping the whole hand and a portion of the forearm, the wound healed by first intention, and the drainage-openings closed on the tenth day. The man was discharged, with his condition as before the operation.

CASE XVII.—This, with the next case, is an example of the conversion of an old suppurating wound into an aseptic one. It occurred in a man who had had his right wrist-joint opened by a hook tearing into it, several months prior to his entrance in the hospital. General arthritis of the carpal joints followed, with the formation of several sinuses. On September 17th, excision of the wrist-joint was performed according to the mode of operation known as Lister's—though, lately, he is reported as having abandoned the radical removal of the whole carpus, with the ends of the metacarpal bones, and those of the radius and ulna,[1] for the more simple gouging out of the diseased parts under the antiseptic spray and dressings. Not being able at that time to obtain the details of the new method, I followed the older one. The parts were removed according to rule, and the sinuses leading to the diseased bones, and necessarily the wound also, were injected with the chloride of zinc solution (40 grains to the ounce); and as the oozing of blood was difficult to control from the combined cause of spray, zinc, and Esmarch's bandage, the cavity of the wound was filled with carbolized sponges (1 to 20) secured by a wet gauze bandage, and the usual gauze dressings with the mackintosh put on over this, so as to cover the whole hand and forearm. The sponges were removed the next day, a large drainage-tube placed across the exsected portion and the dressings renewed, this time with the protective, etc. These were changed every third day. On the fourth day, the splint constructed by Lister for such cases was applied over the dressings; and although this only imperfectly permitted the carrying out of the injunction to frequently use passive motion, yet the performance of this, when the dressings were renewed, allowed a very good result to be obtained. No reaction occurred about the incisions, and but very little pus was formed. By October 8th (date of last report) the cavity of the wound had completely filled up, except a sinus due to the drainage-tube, and running across from one side to the other.

CASE XVIII. *An Old Suppurating Palmar Ganglion, with Subfacial Inflammation involving Palm and Forearm*, was admitted to the New York Hospital, August 8th, 1877. An incision was made in two boggy points, one above the wrist and one in the palm, and drainage-tubes were put in after syringing out the tracks gently with the chloride of zinc solution. The antiseptic dressing was then applied. This was changed on the 11th, 16th, 20th, and 25th, when healing occurred. The patient did remarkably well, and very little suppuration ensued.

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[1] *Boston Medical and Surgical Journal*, October, 1876.

CASE XIX. was a failure that terminated in death. A boy of twelve received an extensive laceration of the soft parts of the calf by being run over by a heavy cart, September 1, 1877. It was determined to try the effect of the antiseptic dressing upon the case, with a view of avoiding amputation. This was done, and the patient progressed very well for a week, when the dressing was discontinued, and thick layers of salicylized jute substituted, for the reason that the sero-purulent discharges were so profuse as to require redressing twice a day, and in the last twenty-four hours became offensive from unavoidable neglect in changing the gauze, etc. During this whole time there was no œdema of the parts above, and but very little elevation of the temperature. With the putrefactive changes the thermometer rose, and swelling of the limb ensued. The patient rapidly developed septicæmia, and died September 14th.

As a full description of all the cases antiseptically treated, while of interest to those who may be engaged in carrying out this treatment for themselves, would occupy too much space for a paper of this description, I shall occupy but a short time in further referring to a few cases of interest that occurred in the charge of Dr. Bull. They are as follows:

CASE XX. *A Compound Fracture of Right Tibia and Fibula in its Middle Third*, produced by a fall, was brought into the Chambers Street Hospital March 20th, 1877. It was put up in Lister's dressing after the wound had been washed out. At the end of the first week (i. e., sixth dressing) the wound had been converted into an ulcer without any formation of pus, only a serous sanguinolent discharge having been observed. Temperature at no time exceeded 101½°. Plaster-of-Paris splint was applied one month later, and on May 18th the patient was discharged cured.

CASE XXI. *Compound Fracture of the Fibula, One Inch above the External Malleolus, with Fracture of the Internal Malleolus opening into the Ankle-joint.*—The foot was reduced, the wounds freely injected with a carbolic solution of 1 to 20, and the antiseptic dressings applied with an external boot-shaped splint. No local reaction occurred, nor was any pain felt. The temperature did not exceed 101½° at any time during the progress of the case, except on the fourth day, when delirium tremens developed itself. Only a very little pus was formed at any time. The wounds were reduced to simple ulcers on the forty-ninth day, but the final cicatrization was slow. Discharged with good motion in the joint.

CASE XXII. *Compound Fracture of the Tibia and Fibula, Middle Third*, with a wound admitting the little finger. Injected, and antiseptic dressings applied, but no drainage-tube. No reaction; only a slight serous discharge. Six dressings in eighteen days, when wound closed. Put up then in plaster splint, and discharged. Union firm on thirty-seventh day.

CASE XXIII. *A Bursa over the Patella*, and of the size of half a lemon, was opened by a small incision, under carbolic spray; one ounce of fluid evacuated, and a small drainage-tube inserted after the cavity had been injected with a 1 to 20 solution of carbolic acid. A carbolized sponge was then applied as a compressor, and over this the antiseptic dressings. Primary union of serous surfaces occurred, and the patient was out of bed on the third day, and was discharged on the fourth day, with a sinus half an inch long, which healed in a week.

CASE XXIV. *Removal of a Loose Cartilage from the Right Knee-joint by Direct Incision.*—This was accomplished under the carbolic spray, by a wound one and a half inch long, which was then closed by catgut sutures and the rest of the antiseptic dressing applied, except that no washing out or tube was used. The limb was put on a long posterior splint. Considerable pain was experienced for six hours, but from that time the progress of the case was completely satisfactory. No swelling or tenderness of the joint, or temperature elevation, followed. Forty-eight hours after the operation the dressing was changed, and the wound found closed by primary union. A little bloody serum was seen about the wound. The patient was discharged from the hospital on the seventh day, walking about.

While the foregoing list of cases does not embrace the whole number treated according to Lister's method, yet it shows quite a uniformity of success in a variety of operations and wounds. The feeling of certainty as to the result, which those older in the method refer to, has, speaking personally, decidedly augmented with the increase of experience. The total number—fifty-six—is, however, palpably insufficient for statistical inference; and, for the purpose of duly impressing you with the advantages of this method of treatment, I must bring before you the testimony of others who have been able by it to overcome the most serious obstacles met with in surgical practice.

Saxtorph, of Copenhagen, who was the first on the Continent to follow Lister's teachings, says "that it has completely changed his principles of pathology and his surgical practice;" and in respect to another point of interest, he states that "he is equally sure that if he does not carry out the antiseptic treatment to its full extent, it is of no use whatever to apply carbolic acid to a wound, at least as regards the dangers that always accompany putrefaction."[1]

Nussbaum, in a report of the surgical cases treated in his clinic at Munich, in a very bad hospital where, prior to 1872, 80 per cent. of the wounds were attacked with hospital gangrene, says that "since then, to the year 1875 (the date of his last report),[2] there has not been a single case of this disease." To accomplish this, he tried the open treatment, the occlusion dressing, the water-bath, irrigation with chlorine or carbolic-acid solutions, salicylic acid in solution and in substance, and the putting on of Lister's antiseptic materials, such as the carbolic-acid paste, etc., but all were unable to combat hospital gangrene and pyæmia. "But when we applied," he continues, "to all our patients the newest antiseptic method, now in many respects improved by Lister, and did all operations according to his directions, we experienced one surprise after another; everything went well; not a single case of hospital gangrene occurred, . . . and pyæmia and erysipelas completely disappeared"—a statement that time has shown not absolutely true, though very near to it; for Lindpaintner,[3] his assistant, has lately published a list of 459 cases of severity, treated antiseptically, in which eighty deaths occurred, three of which were from pyæmia. In all these cases, only six cases of erysipelas were met with.

Thiersch, of Leipsic, the first surgeon in Germany to use the Lister method, declares that, "although the technical details may be modified, Lister's postulate"—exclusion of the atmospheric ferments from the wound—"will certainly never again be lost sight of." He it was who, in endeavoring to simplify the antiseptic treatment, brought into use salicylic acid. This disinfectant was employed by him in spray, while performing an operation, the wound of which was closed by antiseptic sutures, drained by rubber tubes, and covered by an inch layer of salicylized cotton of 10-per-cent. strength, over which a second layer, two inches thick, of 3-per-cent. salicylized cotton was placed, extending about a hand's breadth above the stump, for instance, and secured by a bandage without any mackintosh. Later on in his experience, he used jute, salicylized to a similar strength, in place of the cotton.[1]

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[1] *British Medical Journal*, December 25, 1875.

[2] Idem, and "Die chirurg. Klinik zu München im Jahre 1875."

[3] *Deutsche Zeitschr. f. Chirurg.*, vol. vii., p. 187.

(This substance, which is a veritable addition to the surgical armamentarium, is the inner bark of a Bengal plant [*corchorus capsularis*], and from it the gunny-bags of commerce are made. It is very absorbent, and makes an excellent dressing for freely suppurating wounds.[2]) This dressing was changed for the first time at about the tenth day, when the tube was removed. Healing of the wound was expected at the second or third dressing. He reports the trial of this and Lister's antiseptic treatment in one hundred and sixty cases, among which were fifty-one cases of major amputations, resections, and compound fractures, and of which only seven proved fatal. The results, the greater part of which were from the salicylic dressing, though very brilliant, have been so much surpassed by the Lister treatment, that, since the publication of Thiersch's statistics, it has been announced that he has given up salicylic acid and now uses Lister's method altogether.[1] Thiersch makes the statement that, however much the idea may be ridiculed, he entertains no doubt that failure often results from an under-estimation of the technical instructions; and those surgeons who regard the whole thing *a priori* as a kind of fashion, or even delusion, run a risk, on that very account, of attaining bad results.

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[1] "German Clinical Lectures," Sydenham Society, p. 63, *et seq.*

[2] The 10-per-cent. salicylic cotton, the only kind required in the Lister dressing, is made by putting five pounds of hygroscopic cotton (a cotton deprived of its oiliness by being boiled in a 4-per-cent. solution of caustic soda, and recarded)[1] in a solution of eight ounces of salicylic acid and two and a half quarts of alcohol of 0.830 sp. gr., diluted with four gallons of water at 150° Fahr. The soaked cotton is piled up, not hung, to dry. It is customarily stained with carmine, to distinguish it from the 3-per-cent. cotton.[2] The jute is salicylized to a 4-per-cent. strength, which has, by reason of its permeability, been found sufficient. It is prepared by being immersed in a solution of two and a half ounces of salicylic acid, one pound of glycerine, and ten pounds of water, raised to a temperature of 158° to 176°.[3] This amount will suffice for five and a half pounds of jute. Jute is obtained at the Dolphin Manufacturing Co., 65 Duane St., N. Y., at eight cents per pound, and costs in hospital, when salicylized with Merck's acid, about forty cents a pound.

[1] Bruns, Chirurg. Prax., p. 145.

[2] Girard, Circular No. 3, Surg. Gen. Office, 1877.

[3] Thiersch, *op. cit.*

Unfortunately, time will not permit me to quote the opinions of all the well-known surgeons who have tested and have approved the antiseptic treatment. I need only refer to Annandale, a colleague of Lister; Heath, of the University College Hospital, London; Pick and Holmes,[2] of St. George's Hospital; Croft, of St. Thomas's; Thomas Smith, of St. Bartholomew's, where Callender has had such good results by other methods of treatment to be described hereafter; to Esmarch, of Kiel, as well as to many other distinguished men, as indorsers of the efficiency of this method of treating wounds.

It has been thought that some points might be omitted from the at first troublesome *minutiæ*—some simplification of the method made; this, perhaps, will be accomplished as time advances and experience widens. Trials have already been made in this direction by Thiersch. Bardeleben,[3] too, has been carrying on a modification of the antiseptic treatment in his clinic, but he finds he cannot omit the most annoying feature of it—that is, the spray—though he weakens it to a 1½ per cent. solution. He uses, however, as a variation, the silkworm gut carbolized, and employs what he calls jute-cake, or jute rolled into flat masses, which are soaked in a 1 to 20 carbolic-acid solution, and secured by a bandage without any mackintosh. But his results are not so good as those afforded by the Lister method, though in the treatment of several hundred cases he reports that pyæmia and septicæmia did not occur, and erysipelas only once. Attempts to do away with the spray, by simply washing out the wound with the carbolic-acid or chloride of zinc solutions, have not proved satisfactory with him.

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[1] "Transactions of the International Medical Congress," p. 587.

[2] "Treatise on Surgery," p. 50.

[3] *Deutsche med. Wochenschr.*, Nos. 22, 23, 1876.

The most encouraging statistics presented by a modified antiseptic treatment are those furnished by Mr. Callender, of St. Bartholomew's Hospital,[1] and by Mr. Spence, an associate of Lister himself. Mr. Callender has given a report of forty-four amputations performed by him in the course of three years with only *one death*, or 2.27 per cent. (viz., twenty thigh amputations, one death; sixteen of the leg, no deaths; two of the arm, no deaths; and six of the forearm, no deaths).[2]

Callender's method of treatment[3] is, briefly, to tie bleeding vessels with carbolized catgut, he having formerly used torsion to arrest hæmorrhage. He then washes out the stump with a carbolic solution of 1 to 20, or chloride of zinc 1 to 12, and, after inserting for drainage two pieces of carbolized gutta-percha tissue, loosely tied together with carbolized catgut, which straddle the bone and allow the gutta percha to emerge from the angles of the wound, he closes it with silver sutures taken some distance from the edge of the wound. Over this are now placed three layers of lint dipped in carbolized oil 1 to 16, covered by gutta-percha tissue and a thick covering of cotton wool, all fastened by a bandage. Rest is secured by a stump-splint, hinged to allow ready redressing. The bandages, etc., are changed from one to three or five days. The catgut, dissolving in two or three days, permits the withdrawal of the drainage-tents.

Spence[4] has had not so happy a result, having had twenty-six amputations and six deaths—23 per cent. His most recent method is, after washing the wound out with carbolic water and inserting a drainage-tube, to close it with sutures or straps, and to apply lint soaked in a saturated boracic-acid solution, or in carbolized oil 1 to 20. The whole is then covered with waxed paper.

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[1] "St. Bartholomew's Hospital Reports," vols. ix. and x.

[2] These cases, it must be stated, are confessedly carefully-selected ones, many amputations being rejected for injuries that would probably be operated on by other surgeons.

[3] *British Medical Journal*, March 18, 1876.

[4] *Medical Times and Gazette*, October 28, 1877.

Holmes has performed after Lister's method, save using the spray, thirty-two amputations, and had only three deaths—9.3 per cent.[1] All these cases make a total of one hundred and two amputations and ten deaths, or 9.80 per cent. of mortality by the modified antiseptic treatment. This mortality should be compared with the results attained in the same hospitals in years previous to the adoption of the present mode of treatment. In St. Bartholomew's, for instance, there had been, from 1853 to 1868, seven hundred and nineteen amputations and one hundred and fifty-four deaths—21.4 per cent. mortality; and in St. George's, in five hundred amputations of all kinds, there were one hundred and fifty-three deaths —30.6 per cent. mortality—of which seventy-five were cases of pyæmia.

This omission of the spray, with the observation of the other directions of Mr. Lister, has not, so far as my researches go, been systematically resorted to to any great extent except by Mr. Holmes, though one would think, from the results obtained in the treatment of compound fractures, and wounds exposed for a moderate length of time to the air, that it might be successful. Nevertheless, a number of trials have been made with antiseptic dressings differently applied, such as those of Pozzi in Paris,[2] where no spray was used, and, instead of the antiseptic gauze, carbolized cotton was employed, and over this was placed carbolized hygroscopic cotton; and instead of protective, gold-beater's leaf was substituted; and for the mackintosh, ordinary oiled silk. Seven cases of operation are given as the result of this treatment, only one of which was of magnitude, viz., an amputation of the leg in which union by first intention occurred. The imperfection of such reports constitutes at present the difficulty of comparing their results with those attained by Lister's method.

If we now take compound fractures of thigh, leg, arm, and forearm, which, together with amputation-wounds, are by common consent resorted to to test the value of any new method of treating wounds, and for obvious reasons, we find that Callender had forty cases of such injuries, with but one death—viz., 2.5 per cent. only of mortality. Spence reports so few cases of this sort—only three compound fractures, with one death—that they are useless for our present purpose.

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[1] "St. George's Hospital Reports," vol. viii.

[2] *London Medical Record*, March, 1877.

There are two other modes of treating wounds that should be considered a moment, before endeavoring to appreciate by comparison the statistical value of Lister's dressing. I refer to the open treatment, and the cotton-wool dressing of Guérin. The open treatment is indicated by its name. The stump of an amputation is not closed; it is simply left exposed to the air, covered lightly by a cloth to protect it from flies, etc., and under it is placed a saucer to catch the secretions. It was introduced to notice in the early part of this century by Kern, a Vienna surgeon, whose name is sometimes attached to the method. It was, however, revived in 1856 by Vezin, of Osnabrück, as well as by Burow, Bartscher, and Humphrey. Latterly, the success that can be attained by this method has been made known to us by Dr. James R. Wood, of this city, who has published, through his house-surgeon,[1] fourteen cases of amputation treated in this way without a single death. An excellent *résumé* of the results of this treatment is given in an able article by Krönlein in the *Archiv für klinische Chirurgie* for 1875. He there compares the results obtained by it with those furnished by the antiseptic method. In presenting them to you for comparison, only the amputations or compound fractures heretofore referred to—to wit, of the thigh, leg, arm, and forearm—will be considered. From a number of amputations by the open method, furnished by Krönlein—viz., fifty-three, with fourteen deaths—the mortality from this method is shown to be 26.4 per cent.; and, of sixty-five cases of compound fractures likewise treated, the mortality was fourteen, or 21.5 per cent.; though, if he included, as he should have done, those fractures wherein amputation or resection was necessitated by the progress of the case, the mortality would have been 25.4—i. e., one hundred and two cases, with twenty-six deaths. Erysipelas was more common, also, in the open treatment than by the antiseptic method. The duration of the treatment, again, was in favor of Lister's method, as two is to one—e. g., for thigh-amputations by the open treatment, the duration in hospital averaged 118.2 days; by the antiseptic treatment, 61.2 days; for leg amputations, open treatment, 87.5 days; antiseptic, 47 days; arm, open, 57.7 days; antiseptic, 28.7 days.

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[1] Dennis, *New York Journal of Medicine*, June, 1876.

In respect to the cotton dressing of Guérin, we learn from Hervey [1] that the mortality of the amputations treated by this method amounted to 46.1 per cent.

Now, naturally to meet such figures as have just been given, and especially those of Callender, one turns, for the facts required, to Lister himself. Unfortunately, he has published but few cases, and those mainly to illustrate his method. The condemnation, therefore, for not making his results known, passed upon him in the discussion upon the subject of antiseptic dressings in the Clinical Society of London, is, so far as the English language is concerned, correct. But in 1874, in Langenbeck's *Archiv für klinische Chirurgie*, Reyher published a careful comparison between the results of treatment of Lister and his predecessor in the same hospital, the great Syme. These are extremely interesting in themselves, as well as for the purpose of contrasting with the statistics of others. Reyher collected one hundred and twenty amputations performed by Syme, in which there were twenty-eight deaths—a mortality of 28.3 per cent.; or, in leaving out the hand and foot amputations, there were seventy-five major amputations, with twenty-six deaths—a mortality of 33.3 per cent.; and, of these, there were sixteen from pyæmia and four from septicæmia. The number of amputations performed by Lister was one hundred and twenty-three, in which there were twenty-one deaths, or a mortality of 17 per cent. Taking out the foot and hand amputations, as in the preceding case, there remain seventy-six major amputations, with twenty deaths, or a mortality of 26.3 per cent. as against 33.3.[2] Only one of

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[1] Thèse de Paris, Sur le pansement ouaté.

[2] Expressed differently: Syme, for pathological amputations, had 26.8 per cent. mortality; for injuries, 41.1 per cent. Lister, for pathological amputations, had 15.9 per cent.; for injuries, 40.6 per cent. mortality.

Lister's deaths occurred from a wound complication. Inasmuch as it has been asserted that the deaths charged by Lister to anæmia really resulted from diseases due to wound-poisoning, I have taken the trouble to examine his table of deaths, and find that, of the fourteen cases assigned to this cause, one had a secondary hæmorrhage, and died two days after it; one died between forty-eight and seventy-two hours after the operation, from other injuries, and twelve died within twenty-four hours—too early, therefore, for septic effects. Lister's wards, it must be remembered, are small—of a capacity of fifty-five beds, but often containing seventy-five patients—and are always over-crowded. The absence of pyæmia and septicæmia is therefore all the more striking in these figures of Reyher. Erysipelas has been with him, as well as with many of his followers, reduced to a rarity.

While the opinions and data just given show very clearly the advantages of the antiseptic treatment, and while the general impression of all surgeons witnessing that treatment in Lister's own wards has been favorable to the method, yet the statistics themselves do not equal those presented by Callender. It is difficult to make such a contrast as perfectly as could be wished, because of the want of sufficient details. It is desirable, for example, to know, in Callender's table, how many were pathological amputations, or what complications existed, if any, at the time of the operation, etc.; for, in an experience the most important yet offered to the profession on the subject of antiseptic dressings, these points are strictly elaborated by the reporter, Dr. Volkmann, of Halle.[1] This eminent surgeon has had, since the year 1874, excluding cases of ligature of arteries, operations on tumors, severe injuries of the hand, operations in which the abdomen was opened, etc., about ten thousand cases under the antiseptic treatment, rigidly carried out according to Lister's directions. Of this number, he states, more than a thousand were great operations and severe injuries. The amputations amounted to one hundred and eighty-three in one hundred and seventy-two patients, of whom twenty-three died—equal to 13.3 per cent.;[1] but twenty-three cases, with sixteen deaths, should be deducted to place them fairly in relationship to Callender's, and then the mortality would descend to the low rate of 2.87 per cent.!—only surpassed by Callender's 2.27! If the foot-amputations were cut off, as they should be—forty-two cases, with no deaths—the percentage would rise to 3.09. These results, whether Callender's or Volkmann's, are truly wonderful. Of the two methods—one strictly and the other the modified antiseptic method—judging from personal observation, that of Lister's is the most likely to afford the best results in inexperienced hands, and has an advantage in not requiring the dressings to be so often disturbed.

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[1] Congress of the Society of German Surgeons, *London Medical Record*, June 15, 1877.

On this point Mr. Holmes, who, be it remembered, omitted with marked success the carbolic spray, says, in his "Treatise on Surgery" (1875), that, "allowing for this (that is, the effects of cleanliness, well-managed hospitals, etc.), I cannot but express my strong conviction of the value of the method of dressing wounds which Mr. Lister has introduced. I have frequently pointed out the perfect immunity from traumatic fever, which in some cases follows even the gravest injuries or operations thus treated; and, although I quite admit that a similar immunity follows after other methods of dressing, yet I think it is more common after that which is called the 'antiseptic system' than any other, and on that account I advocate the use of that system, as well as on account of its utility in hospital practice, as necessitating the dressing of important cases by the surgeons or house-surgeons themselves, and almost excluding the possibility of any subsequent inoculation."

Turning again to the results secured by the Lister treatment in compound fractures, with which we only have the open and the modified antiseptic treatment to compare it, even more encouraging figures are presented. Volkmann (not to allude to his other great successes) has had seventy-five compound fractures in seventy-three patients under his charge, and, with the aid of the antiseptic treatment, has not lost a single one, although amputation became necessary in eight of them. Add to this, as occurring at the same time in his hospital, fifty operations of osteotomy in thirty-eight patients, with only one death (from the hæmorrhagic diathesis), and you have a success that is unparalleled! The compound fractures included: thigh, one; knee, four; leg, forty-two; arm, six; elbow, five; forearm, fifteen.

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[1] Compare with statistics of St. George's and St. Bartholomew's Hospitals, *ante*.

The osteotomies were performed on the femur thirteen times, and on the tibia thirty-seven times. Resection for false joints was also done nine times successfully.[1] The comparison of these results of seventy-five cases and no deaths with the 25.4 per cent. of mortality by the open method or with the 38 per cent. of mortality by the ordinary treatment,[2] is too striking for comment. It will only bear association with Callender's forty cases and one death.[3] Many of these compound fractures of Volkmann's were machinery-accidents, and many had the lacerated muscles hanging out of the wound, and in several cases the skin was torn off from the knee to the ankle. As his experience grew, the resort to amputation became more and more seldom. This treatment also received a severe test in those cases of compound fractures where the large joints[4] were involved, which occurred in twenty-one cases, with the result of eleven times preserving the limb, with anchylosis taking place in only one case; which result, he says, surgery in former times can show nothing analogous to. He corroborates a statement made in the earlier part of this paper, that irrigation of a wound is to be avoided after the first dressing, as it disturbs the coagula, etc. By not doing this, and by removing the drainage-tube early, he has had primary union, without any remaining sinus, in hip, knee, shoulder, and elbow resections in four, eight, and sixteen days from the date of the operation. The early removal of the tube—in which point he differs from the teachings of Lister—may be done from the second to the eighth day, or as soon as it is seen that no fluid flows out on moderate pressure.

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[1] "Sammlung klinischer Vorträge," Nos. 117, 118.

[2] Idem.

[3] In the Boston City Hospital, for the five years ending 1874, were one hundred and fifty-seven compound fractures, of which sixty-five died —41 per cent. From the Roosevelt and St. Luke's Hospitals I have notes of twenty-one cases and seven deaths—33.3 per cent.

[4] When this complication was encountered, the joint itself was opened, washed out with the carbolic solution, and drainage-tubes inserted.

As his results have been so good and his experience so large, it will perhaps be of service to shortly sketch his manner of treating compound fractures, especially as we have but little in English concerning the antiseptic treatment of these injuries. Since, with him, the first dressing decides the fate of the patient and the progress of the wound, much care must be spent on it. All counter-incisions, sawing off of the ends of the bones, extraction of loose splinters, adjustment of fragments, and disinfection, must be attended to at this dressing. As he believes it is necessary that the ends of the bones should be seen, he often widens the wound and scoops out the clot, so that the irrigation (with a 1 to 20 solution) can be thoroughly made against the fractured portions, and especially in or against the fissures caused by the injury. By this exposure of the bone, also, any portions of intervening muscles, etc., can be removed. Counter-openings are to be made if the wound is deep; and, if the fracture cannot be reached through the original wound, it is to be cut down upon by a free incision at the nearest point. After the irrigation, the drainage-tubes, small and numerous, are inserted to the fracture, not between it, and in all pockets, with their projecting ends trimmed off and held externally by a needle traversing them, and the wound finally closed up to the tubes by sutures. A second irrigation is now made, and the surplus fluid gently pressed out. No protective is employed, but from fifty to one hundred (*sic*) small layers of the gauze are placed over the wound, and then the usual piece of eight layers, with the interposed mackintosh, is firmly bandaged on with a wetted gauze bandage. All crevices and ill-fitting edges are stuffed with salicylized cotton, for he considers it an hermetically-closed dressing. This is removed the next day, and, as previously stated, as soon as the discharge ceases, the tube is withdrawn. If, at the second dressing, the bone is yet exposed, he scrapes the sides of the wound to make it bleed, so as to hide the bone by a coagulum to be organized under the dressing. When the wound becomes glassy-red the protective is to be used. The dressing is to be continued until the granulations have filled the wound. If necrosis occurs, the wound will close over it until it is loosened, when it will be discharged, or be dissolved *in transitu*. Immobility of the fracture should be obtained early by outside splints and by a plaster-of-Paris bandage. When the latter is applied, he places over the wound a piece of cotton soaked in the carbolic solution 1 to 20; then he covers the rest of the limb with antiseptic dry cotton, and applies the plaster bandages. The fenestra is cut out under the spray, and antiseptic cotton is tucked under the edges and the gap filled up with the gauze. If the fenestra is large, the splint is put on in the usual way, and salicylic cotton is forced under the edges of the opening, etc., before the gauze is applied.

In his last sixty cases, by the constant improvement that has gone on in his dressings, the results he states have become almost ideal, and his severest cases have united like simple fractures.

Volkmann says of himself, that he only gradually got into the way of using the dressing properly—a statement likely to impart comfort, I hope, to a surgeon more than half discouraged by failures often inexplicable to him.

But one word more need be said, and that is in reference to the cost of this dressing. I have computed that the six dressings probably required for a successful thigh-amputation, allowing six yards of gauze to each dressing, two pieces of mackintosh, with the other materials, will average about sixty cents per dressing.

In concluding this long, and, I fear, from its necessary minuteness, fatiguing description of the antiseptic treatment of wounds, with the results that have been obtained, I trust that the experience presented will have been sufficient to convince the most doubting of its practical efficacy, and to induce them to put it into immediate use. Moreover, the vast saving of life, which a reduction in mortality such as is shown in this little table means, should, if continued, as it probably will be, entitle any one who has been the instrument in the accomplishment of such results to a high place in the list of man's benefactors; and it seems to me that among them the name of Joseph Lister must outrank in medicine all of his century, not excepting the discoverer of anæsthesia.

MORTALITY TABLE.

			From Ordinary Treatment.	From Open Treatment.	From Modified Antiseptic Treatment.	From Strict Antiseptic Treatment.
Amputations	Thigh Leg Arm Forearm	per ct.	21.4[1] 28.00[2]	26.4[3]	2.27[4] 9.80[5]	3.09[6] 10.91[7]
Compound Fractures	Thigh Leg Arm Forearm	per ct.	88.00[8]	25.4[9]	2.50[10]	0.00[11]

Clinical Records from Private and Hospital Practice.

I.—*Cases of Subperiosteal Resection.* By THEODORE R. VARICK, M. D., Surgeon to St. Francis's and Jersey City Charity Hospitals, Jersey City, N. J.

THE power possessed by the periosteum of regenerating bone which may have been removed by operation, or have undergone death, has long been recognized by the profession. It was reserved for Ollier, in his great work,"[12] to bring it prominently forward and demonstrate its applicability to consecutive surgery.

It would be manifestly inappropriate, in this connection, to allude to the numerous operations performed for the extirpation of bone, and I shall therefore limit this paper to those cases resulting in reproduction of osseous tissue.

The term "subperiosteal resection" is used in a restricted sense, and is applied to "those cases in which the bone, previous to the operation, retains its natural connections (at least to a great extent), and in which the periosteal sheath has not yet been formed." In such cases, after the removal of the whole thickness of the diseased or injured bone for a certain portion of its length, the parts left behind are held together only by the periosteum and the adjacent soft parts.[1]

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[1] "St. Bartholomew's Hospital Report," *loc. cit.* [2] Spence's "Surgery." [3] Krönlein. [4] Callender. [5] Callender, Spence, and Holmes. [6] Volkmann. [7] Volkmann and Lister. [8] Lucae, quoted by Volkmann. [9] Krönlein. [10] Callender. [11] Volkmann.

[12] "Traité experimentale et clinique de la Régéneration des Os," Paris, 1867.

Although the operation on the clavicle does not reach the magnitude of some of those on the larger bones, its successful result is none the less important to the individual when we consider its proximity to the great vessels of the neck, its muscular attachments, and its future influence on the usefulness of the arm.

Case of Subperiosteal Resection of the Clavicle, with Reproduction of Bone.—In the *New York Medical Record*[2] will be found the report of a case of this kind operated on by me, in which there was reproduced a thoroughly ossified clavicle.

I now report a second case, as follows: Timothy Mitchell, aged thirty-one years, a native of Ireland, by occupation a laborer, was admitted to the Jersey City Charity Hospital April 7, 1874, suffering from a large flabby ulcer over the acromial end of the right clavicle.

Previous History.—About ten years ago he contracted chancres in London, which were not followed by any constitutional effect. About four years ago he again contracted chancres in New York, which were followed by syphilitic eruptions. Two years previous to his admission he suffered from periostitis, especially marked over the right clavicle. In the latter situation it gradually increased in severity, compelling the patient to give up work. An abscess had formed over the acromial end, giving vent to a copious discharge of pus. On admission he was pale, weak, and emaciated, with hectic, sweats, etc. In addition to the ulcer previously indicated, there were numerous small openings leading down to the bone, which, on exploration with the probe, was found roughened, and evidently extensively diseased. An operation having been decided on, an incision was made through the soft parts to the bone, extending from the margin of the ulcer to the sterno-clavicular articulation. At this point the periosteum was separated and a curved spatula passed posteriorly, and the bone sawed through with Hayes's saw. The periosteum, which was loosely adherent, was peeled off, thereby liberating the bone from its attachments, and it was removed. At the point corresponding with the ulcer the periosteum was destroyed, except a narrow strip about an eighth of an inch wide, which formed the only connecting medium with the acromion. The arm was retained in position by means of

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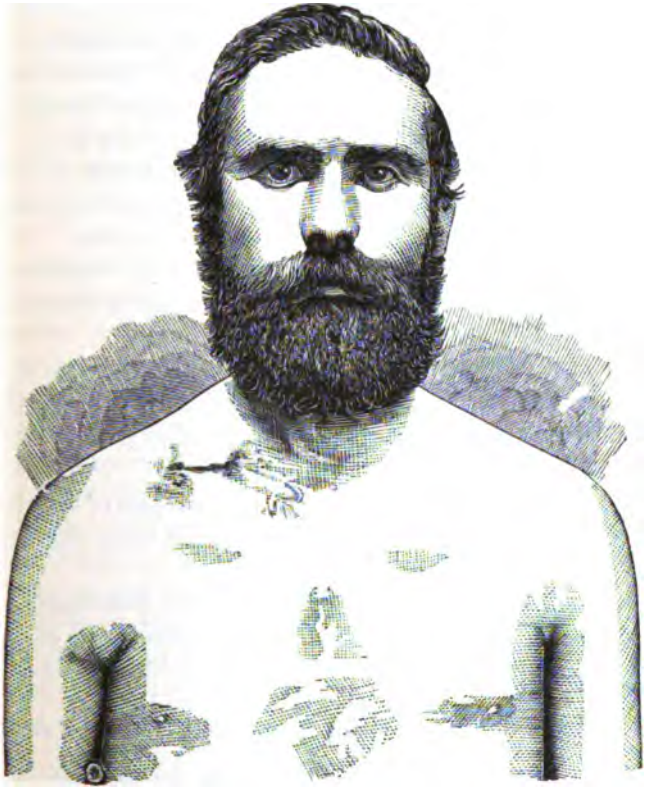
[1] "Biennial Retrospect of Medicine and Surgery," 1867, p. 257.

[2] Vol. iv., p. 510, 1869.

FIG. 1.



From a Photograph taken on the Day of his Discharge from the Hospital.

adhesive straps, after Sayre's method for fracture of the clavicle. The patient was discharged cured, August 11, 1874, with a firmly-ossified clavicle, free from dropping of the shoulder or any deformity, and with perfect use of the arm (*see* Fig. 1).

Of recorded cases I have been able to collect the following:

Case I.—M., aged twenty-six years, was admitted into the Hôtel Dieu, Paris, September 7, 1765, with caries of left clavicle. M. Moreau found it denuded of periosteum. The bone was easily isolated (being only retained by the skin) and removed. He died some time after from a tumor of the thigh. On *post mortem*, the whole clavicle was found regenerated.[1]

Case II.—M., aged forty years, entered Lariboisière June 27, 1854, for spontaneous fracture of the right clavicle, followed by ostitis and abscess. Resection was performed, with preservation of periosteum and regeneration of the bone.

Case III.—Meyer,[2] of Zurich, removed a clavicle for caries in a man aged thirty-one years. In seven weeks the wound healed, and the patient recovered the use of the arm.

The patient died five years after, and there was found a partial regeneration of bone, the deficiency being supplied by cartilage.

Case IV.—Blondin,[3] in 1842, resected a portion of the clavicle for caries. He preserved only the periosteum which covered the inferior aspect of the bone. This periosteum reproduced bone, but not a complete clavicle.

Case V.—Biangini,[4] of Pistoja, reports a case of successful extirpation for necrosis. Miguel alleges the bone was regenerated.

Case VI.—John W. Irvine, L. R. C. S., Edinburgh,[5] reports a case of excision and regeneration of the entire clavicle.

Case VII.—Champion[6] relates that the elder Pelletan extracted the entire clavicle in the case of a child with abscess of the shoulder, following small-pox, and the bone was reproduced.

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[1] Chassaignac, "Traité clinique et practique des operationes chirurgicales," tom. i., p. 669.

[2] *Journal de Graefe et Walther*, Bd. xix., p. 71.

[3] *Bull. de la Soc. du Chir.*, Paris, vol. iv., 2d series, p. 187, 1864.

[4] *Gaz. Méd. de Paris*, 1840, p. 460.

[5] *London Lancet*, vol. i., p. 206, 1867.

[6] "Convers à l'Hôtel Dieu," 1802.

Case VIII.—Dr. Porquet, of Vire,[1] removed the right clavicle for caries of both extremities of the bone. In this case there was reproduction of bone.

In the "Medical and Surgical History of the War of the Rebellion," part ii., p. 476, Dr. George A. Otis gives the record of thirty cases of extirpation of the clavicle for various causes, in which a number are reported as having successful results, leaving a doubt as to whether the results refer to the recovery of the patients, or regeneration of the part removed; obliging the reader to consult the authorities there quoted for further information.[2]

M. Duplay[3] reports the following:

A young man, sixteen years old, entered St. Antoine March 26, 1872. During the siege of Paris he had variola, followed by an abscess in the right axilla. Abscesses had long since healed. In the beginning of 1873 his right shoulder and axilla became the seat of swelling and pain. An abscess opened in the axilla. The external portion of the clavicle appeared thickened and the tissues infiltrated. An opening was made below, through which there was an abundant discharge of fetid pus.

April 4th.—There was found ostitis, and necrosis of the outer portion of the clavicle.

August 19th.—Patient etherized, and the periosteum easily raised from the bone, which was divided by a chain-saw at the junction of the middle with the outer third. The outer portion of the bone was then pulled out.

Five days after the operation one could certainly feel a hard band giving the sensation of bone. Soon this new bone became as large as the old. In October the wound became fungous and the suppuration more abundant and sanious, and the new bone became imbedded in the swollen tissues; at the same time the inner fragment became inflamed, and denuded bone was detected with the probe. Nothwithstanding injections of iodine, an abscess formed at the internal extremity of the clavicle. At the end of November the condition of the patient was worse than before any treatment, and he refused to submit to any further operation.

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[1] *L'Année Médicale*, May, 1877.

[2] On inspection of the record above quoted, it will be perceived that but three cases, numbered respectively 10, 24, and 28, reported by Biangini, Irvine, and myself, are noted as having resulted in reproduction of bone.

[3] *Gaz. Hebdomadaire de Med. et de Chir.*, Paris, March 6, 1874, p. 155.

This fact shows that the preservation of the periosteum in certain cases does more harm than good. The new bone was of a bad quality, because the periosteum itself was diseased. The health of the patient was perfect at the time of the operation.

This case of M. Duplay is certainly an unfortunate one, and carries its own commentary with it; for it is fair to assume that, had the entire bone been removed, a different result might have been attained, and that the unpleasant train of symptoms was due rather to the presence of diseased bone than to unhealthy periosteum.

Case of Subperiosteal Resection of the Diaphysis of the Tibia; Regeneration of Bone, and Complete Recovery.—John M., aged nineteen years, a native of the United States, was admitted to St. Francis's Hospital, Jersey City, December 17, 1874, on account of a large indolent ulcer over the centre of the diaphysis of the tibia, covered with flabby granulations, and having for its base denuded and roughened bone. The bone was found to be hypertrophied, particularly at the site of the ulcer, gradually diminishing in diameter both above and below this point. He also suffered severely from osteocopic pains, to such an extent as to require the free administration of anodynes in order to procure sleep. Frequent rigors, followed by fever and sweats, with loss of appetite and emaciation, marked his general hectic condition. His trouble he attributed to "barking his shin" against a cart-wheel, some two years previous to his admission. On consultation with the hospital-staff, it was determined to perform subperiosteal resection, in preference to amputation. I accordingly made an incision over the spine of the tibia, commencing just below the tuberosity, through the centre of the ulcer, to within two inches of the tibio-astragaloid articulation. This incision was carried through the soft parts, including the periosteum, which was found easily separable from the bone.

The separation involved the entire circumference of the bone, both above and below, to points at which the periosteum was found firmly adherent, indicating that healthy tissue had been reached. I then passed curved spatulæ posteriorly at either end of the exposed bone, and made the sections with a metacarpal saw from before backward, sawing down upon the spatulæ, which not only served as retractors, but also protected the soft parts from injury. The entire periosteum, except at the site of the ulcer, was preserved, lying like a trough at the bottom of the wound, and showing completely the form of the posterior and lateral aspects of the bone. The leg was placed in a fracture-box, and the wound filled with balsam of Peru and loosely packed with oakum. Granulations rapidly sprang up from the entire surface of the periosteum, as well as from the cut ends of the bone. Those from the bone assuming a conical form, appearing to spring from the medullary cavity and endosteum, were quite as exuberant from the lower as from the upper portion, reaching out and gradually approximating each other, while coalescing with those from the bottom and lateral portions, soon obliterating the cavity left by the extirpated bone. As the part filled up, the integument was gradually brought together, and finally healed with a very narrow cicatrix, except at the former location of the ulcer, which part did not thoroughly heal until ossification had taken place.

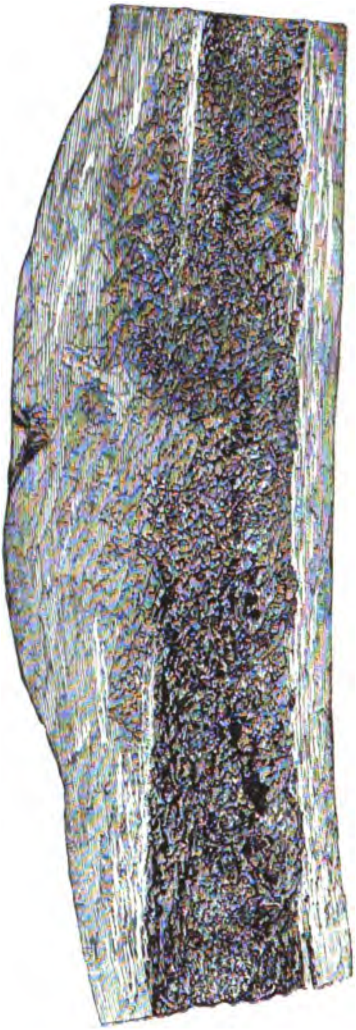
The portion removed measured 5⅜ inches anteriorly and 5 inches posteriorly in length, and 5⅞ inches in circumference, as against about 3 inches, the average circumference of healthy bone.

The part removed, on longitudinal section, was found to be eburnated to nearly its entire thickness, which, taken in connection with its hypertrophied condition, would indicate the existence of chronic ostitis.

The structural changes are shown in the accompanying cut, which represents the actual size of the part removed (*see* Fig. 2).

Solidification progressed rapidly, and at the end of six months the patient was not only able to walk without the aid of stick or crutch, but could support the entire weight on the limb.

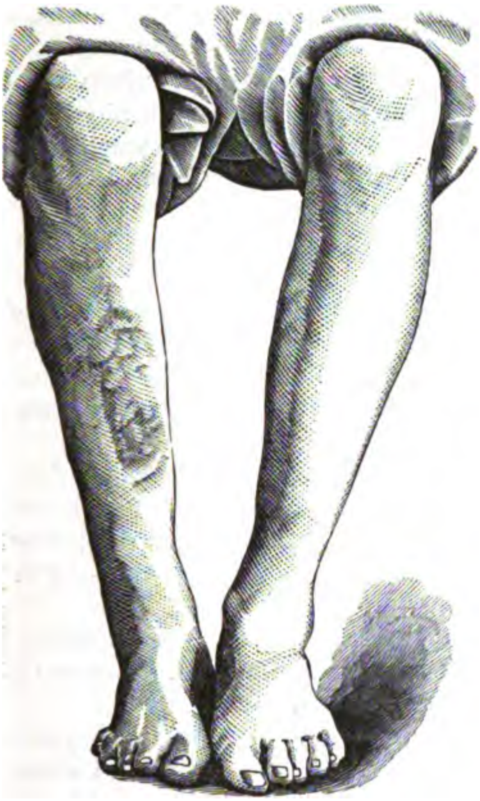
FIG. 2.



Actual Size of Bone Removed.

He was discharged August 20, 1875, eight months and three days from the time of his admission, with less than one-quarter of an inch shortening, and a perfectly-restored limb (*see* Fig. 3).

FIG. 3.



From Photograph taken after Recovery.

Dr. David W. Cheever, in the "Boston City Hospital Reports, 1870," records the excision of the entire diaphysis and lower epiphysis of the tibia from a girl of thirteen years, for suppurative periostitis, followed by reproduction of bone and a useful limb. In the service of Dr. Buckingham, of the same hospital, there is reported the case of a girl, eight years old, suffering from suppurative periostitis, with denudation of the diaphysis of the tibia. About five inches of the shaft were removed, with a good recovery and useful limb.

A third case, operated on by Dr. F. C. Ropes, is reported as still being in the hospital, four months after the removal of the diaphysis of the tibia.

The report continues: "The wound has closed, and the new bone is getting firm. The leg is shortened, and there is dislocation of the fibula, as in the other cases.

Dr. Cheever, in the same report, writes: "That removals of the diaphysis, and especially both diaphysis and epiphysis, of the tibia are rare, is proved by the small number of cases (*five* in all) collected by Ollier, of Lyons, in his great work on the 'Regeneration of Bone.'"

I here give an epitome of the cases alluded to by Dr. Cheever:

1. "Subperiosteal resection of four inches of the lower end of the tibia for suppurative ostitis, with separation of the epiphysis and invasion of the ankle-joint—by Jambon and Aubert, of Mâcon. Excellent reproduction of bone, and perfect restoration of the limb.

2. "Suppurative periostitis of the whole diaphysis of the tibia, with grave constitutional symptoms. Extraction of the diaphysis before the reossification of the periosteal sheath. Recovery, renewal of bone, and shortening—by T. Holmes, of London.

3. "Suppurative periostitis of the diaphysis of the tibia, with severe constitutional symptoms. Removal of the whole diaphysis—by Lentenneur. Recovery.

4. "Subperiosteal resection of the diaphysis of the tibia, for chronic ostitis, to an extent of eight inches—by Larghi. Regeneration of the entire fragment removed.

5. "Ulcerative ostitis of the tibia; subperiosteal resection of the entire diaphysis—by Creus y Manso, of Grenada. Complete regeneration of the part removed. Slow recovery, with restoration of the functions of the limb."

Dr. Neudörfer, an Austrian surgeon, who served in the Schleswig-Holstein war, reports[1] twelve cases of resection from the shafts of long bones which recovered, "and that in none of these did reproduction fail to ensue, nor in any of them was a false joint left. He says, however, in none of his cases, in spite of the most careful preservation of the periosteum, did the regenerated bone reach either the length or circumference of the original, but seemed, as it were, to resemble the younger stage of it; and so there was, in some (all?) cases, more or less shortening of the limb."[1]

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[1] Langenbeck's "Archives," p. 496.

"*Excision of Two and One-half Inches of the Tibia*, by Dr. Kempster,[2] for gun-shot injury. Although it is not absolutely stated that the periosteum was spared, yet it seems to be implied.

"Two months after the operation (December 30th) the gap was filled up by a hard mass, which no longer allowed of any motion of the fragments, and the patient was allowed to leave his bed."[3]

At a stated meeting of the New York Pathological Society, held January 11, 1865, Dr. Conant presented a portion of the tibia removed from a boy seven years of age, shortly after the receipt of a compound fracture of the leg, the result of a railroad-injury on the 21st of July last. Dr. Conant saw the patient about three hours after the accident occurred, and found the limb very much crushed.

The portion of bone which was removed, and which was three and one-eighth inches in length, was lying loose in the laceration, while the fibula, which was also fractured, was bowed strongly outward, one fragment being thrust through the integument. Notwithstanding the fact that fully one-third of the tibia at its middle was removed, the boy made a good recovery, and the periosteum which was left developed new bone to such an extent that there was but one-half an inch shortening.[4]

Dr. W. P. Moon, of Philadelphia, reports the excision of eight and one-half inches of the tibia for necrosis, resulting from a gun-shot wound received at the battle of Petersburg. The periosteum was left, and new bone formed through the entire extent of the wound. The operation was performed October 24, 1864, and on May 10, 1865, he is reported as having recovered.

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[1] See "Biennial Retrospect of Medicine and Surgery," 1867, p. 259.

[2] *American Journal of Medical Sciences*, January, 1866, p. 279.

[3] *Loc. cit.*, p. 264.

[4] *New York Medical Journal*, vol. i., p. 84.

Dr. Moon removed five and one-half inches of the tibia from another case on November 7, 1865, under similar circumstances, with an equally successful result.

II.—*Exsection of the Knee-Joint for Anchylosis at a Right Angle.* By CHARLES T. POORE, M. D., Surgeon to St. Mary's Free Hospital for Children, and to Charity Hospital, New York.

HUGH McG., aged sixteen years, was admitted into St. Mary's Hospital for Children, May 28, 1877, with the left knee-joint anchylosed at a right angle. When eighteen months old he fell, and struck his left knee against a fender. The next day the joint was swollen and painful. After a time, from some unexplained cause, a slough formed below the patella, and there was considerable discharge of pus from numerous openings about and over the knee. The discharge from these sinuses continued until he was seven years old. He complains, at times, of pain, which he locates in the inner condyle of the femur.

On examination, the leg is found to be flexed on the thigh at a right angle, and immovable; the leg is also shortened. There is a wide cicatrix just below the patella, resembling in its shape and situation that from an incision made in excision of this joint, which his mother states was the position of the slough. The patella is displaced to the outer side of the joint, and is immovable; the external condyle of the femur is very prominent. There is an ulcer in the popliteal space, but it is only superficial, and does not lead to exposed bone. The skin is depressed, and adherent to the patella, as though there had been a sinus there. Patient's general condition is good, as well as his family history.

June 9th.—Patient was to-day etherized, and, an Esmarch's bandage being applied, the following operation was performed. (Present, Drs. George A. Peters, Watts, Tucker, Yale, Beekman, and Mason.) The joint was found firmly anchylosed. The usual curved incision was made, extending from the hamstring tendons on one side to those on the other, passing below the patella. The flap thus formed was dissected up, and the patella removed. It was found bound down by fibrous adhesions, and locked in between the external condyle of the femur and the external head of the tibia. There was found to exist fibrous anchylosis in the portion of the joint corresponding to the external, and bony anchylosis in that corresponding to the internal condyle of the femur. After freeing the outer portion of the joint with the knife, the leg was forcibly flexed, and the bony anchylosis broken. By working carefully around the periphery of the tibia, this bone was fully exposed, and a section made from before backward, at right angles to the axis of the limb, with a common amputating-saw. When the section was nearly completed, the back of the saw was raised so as to break off the piece, in order not to wound the artery. This section was about half an inch thick. A slice was then removed in the same manner from the femur, of about three-quarters of an inch in thickness. The cut end of the internal condyle showed points of disease. As the amount removed was not sufficient to permit the bones being brought into apposition, another piece was taken from the femur, leaving the cut end of that bone healthy; it was also found necessary to take a second section from the tibia, in order to allow the leg to be brought into a straight line with the thigh. Two pieces of malleable iron wire were then passed through holes made in the following manner: one, beginning at a point about one inch and a half below the cut edge of the tibia, and corresponding to the middle of its external head, passed upward and backward so as to emerge at about the middle of the cut surface of this bone; another, beginning at a point the same distance from the cut edge of the femur, and corresponding accurately with that on the tibia, was made to pass downward and backward so as to emerge on the cut surface of the femur directly opposite the first. Similar holes were made to pass from the internal head and internal condyle. The wires being placed in position, the bandage was removed. There was but little hæmorrhage from the soft parts, but the oozing from the cut ends of the bone was profuse. The cut surfaces of the bones were irrigated with a strong solution of carbolized water, until the oozing had greatly diminished. The wires were then twisted so as to hold the bones in apposition. The limb was then put up in the following manner: A splint was made, consisting of a thigh-piece made of sheet-steel, gauge No. XX., extending from just below the trochanter to within an inch of the point of section; this was accurately fitted to the posterior aspect of the thigh, wider above and narrow below; another piece of steel, extending from just above the malleoli to within an inch of the point of section, being cut out at its lower end, so as to take off all pressure from the tendo Achillis; this was also accurately fitted to the back of the leg; these two pieces were united by a short piece of iron riveted firmly to one of the back splints, while it was held to the other by a screw, so that it could be lengthened or shortened; the edges of both pieces were turned back, so as to prevent any cutting. The piece of iron connecting the two was so bent as to leave a free space behind the joint. The leg was bandaged from the toes up to the joint, and the thigh from above downward, with flannel bandages. The limb was then laid on the splint, and the whole surrounded with plaster-of-Paris bandages, so as to hold everything securely, leaving an interval on top of three or four inches in the location of the wound, but almost meeting behind the iron bar uniting the leg and thigh pieces. A long iron rod extending from the groin to the toes, with a loop over the situation of the joint, in order to sling the whole limb, was then fastened on to the splint. The wound was brought together with carbolized catgut sutures. No vessels were ligated. The plaster-of-Paris splint about the wound was then brushed over with melted paraffin, so as to protect it from being soiled by the discharge. The same material was applied over the edge of the splint and the skin, especially behind the popliteal space, so as to prevent the discharge from getting between the limb and the bandage. A musquito-netting bandage was firmly applied over the knee, in order to control hæmorrhage; over this an ice-bag, separated from the bandage by a layer of flannel, covered the whole wound. Patient put to bed with limb suspended. Sol. sulph. morph. Mag., ℳ. viij.

June 10*th*.—Rested well last night; all oozing ceased. The ice-bag was discontinued on the 13th. There was no heat or swelling about the knee. An air-cushion was placed under the nates, so as to prevent bed-sores.

15*th*.—There was considerable sloughing of the old cicatricial tissue on the inner side of the knee. The rest of the wound is uniting; discharge slight.

Nothing worthy of note occurred. The discharge from the wound did not exceed half an ounce a day. There was a collection of sanious discharge, occupying the position from which the patella had been removed; this was evacuated. There also occurred a small collection of pus just above the internal condyle.

July 6*th*.—As the plaster-of-Paris bandage had become loose, it was to-day removed, and a new one applied. There was considerable union between the femur and tibia. There is now only a small opening on the inner side of the knee.

14*th*.—Wires were removed to-day; union firm.

20*th*.—A small sinus was found on the inner aspect of the knee, leading down to uncovered bone. There is no discharge. The sinuses from which the wires were removed are closing, and the bones cannot be reached by the probe.

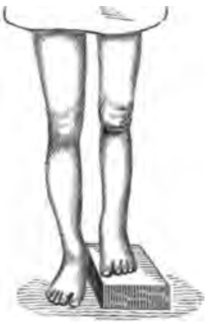
August 1*st*.—All splint removed; union firm; patient about.

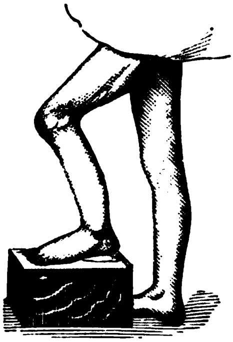
9*th*.—All the sinuses have closed; cicatrix firm; shortening four inches. With a shoe with a high sole he can go about.

October 1*st*.—Goes about without the use of a crutch or cane. Has no pain; is to-day discharged cured.

December 6*th*.—Patient is about town; walks well without a crutch or cane. He walked three miles to-day without discomfort.

This was an exsection for anchylosis at a right angle, and chronic osteitis of the condyles of the femur. It was not treated antiseptically, yet the discharge at any time did not exceed half an ounce a day. The mode of putting the limb up, after the operation, was a slight modification of the splint described by Watson. I think that the iron bar permits of an easier access to the popliteal space than the Watson splint does. This, in my case, was a necessity, on account of the ulcer in the popliteal space. The use of paraffin to protect the bandages was of great benefit, and was freely used during





the progress of the case, whenever there appeared any retraction of the limb from the splint. It melts at a low temperature, and is easily applied with a brush. I think that, in another case, I would make an opening on the flap in the position occupied by the patella, in order to get more perfect drainage, as I found it impossible, by careful padding, to prevent the accumulation of matter in this position. As it was, I had to make an opening at this point; and I think that firm union of the flap to the parts beneath was delayed by this condition. The amount of shortening was due partly to the atrophy of the leg. The amount of bone removed was not more than one inch and three-quarters.

III.—*Case of Laceration of Os Uteri; Operation; Cure.* Reported by E. C. Dudley, M. D., House-Surgeon, Woman's Hospital.

Service of Dr. T. Addis Emmet.

A patient entered the Woman's Hospital, October 4, 1877, with the following history: Previous to marriage, at eighteen, she had always been perfectly well. During the following nineteen years she bore six children, and miscarried three times. The last child was born eight years ago; the last miscarriage occurred seven years ago. At the fourth labor, nine years after marriage, the uterus was forced into complete procidentia, and has since remained in that position, except when held in place by mechanical support, or by the recumbent posture. During the first nine years of this complete procidentia there were four pregnancies, of which two terminated nominally at full term; and, in the early months of all, the gravid uterus not infrequently fell completely outside the body.

Menstruation was normal until last May, when an intermission of three months occurred. The flow reappeared August 1st, and continued constant, and often very profuse, for seven weeks, finally terminating in several attacks of profound syncope.

Upon admission, examination showed subinvolution of the uterus, vagina, and perinæum; cystocele and rectocele; laceration of the perinæum, extending to the sphincter ani muscle: bilateral laceration of the cervix uteri, extending on each side past the vaginal junction, through the vaginal wall, about one inch into the cellular tissue of the pelvis. All the mucous membrane of the cervix, and that of the lower part of the body, had rolled out, and was in contact with the acid secretions of the vagina. This everted membrane was eroded, and presented a red, angry appearance; and the mouths of the muciparous follicles having been occluded, and the follicles themselves distended by their own secretion, the membrane had undergone cystic degeneration. With one tenaculum hooked into the anterior lip of the lacerated cervix, near the vaginal junction, and another into the corresponding part of the posterior lip, the two lips were brought in contact with each other, and the everted tissue rolled back inside the uterus. The diameter of the everted cervix was three inches; but by rolling back the everted tissues, this diameter was reduced about one-third. The depth of the uterine canal, measured from the angle of the laceration-point *o* (Fig. 2) to the fundus, was five inches.

The patient was assigned to the service of Dr. T. A. Emmet, and, by his advice, the following treatment was practiced: The general health to be improved by rest, ferruginous tonics, and a liberal diet; the uterus to be held in position by mechanical support; the hot-water vaginal douche, temperature 105° Fahr., to be applied for twenty minutes twice daily, the patient being in the recumbent posture, and the hips elevated; to open from day to day, by piercing with a fine-pointed lance, the cysts of the cervix, which were present in large numbers; the everted and eroded membrane to be treated by daily applications of a pledget of cotton saturated with tannin and glycerine.

After four weeks of treatment the cysts had been emptied, the erosion had healed, the diameter of the cervix had been reduced one-fourth, and the depth of the canal from five to four inches.

November 1*st.*—The operation of trachelorrhaphy[1] was performed by Dr. Emmet.

In Fig. 1, suppose the plane on one side of the line $x\ x'$ to represent the inner surface of the anterior lip of the lacerated cervix, and that on the other side, the inner surface of the posterior lip: suppose these planes to intersect at an obtuse angle, and $x\ x'$ to be their line of intersection, then will the figure represent the lacerated cervix, as viewed through Sims's speculum, and the circle in the middle of the line $x\ x'$ will be a section-view of the uterine canal at the angle of laceration. In Fig. 2 is shown a lateral view of the laceration, and the bell-shaped cervix, larger even than the fundus.

With the curved scissors and a tenaculum, the surfaces A', x', A, and $6'''$, x, $6''$, Fig. 1, were carefully denuded; while the surface A', A, $6''$, $6'''$, was left intact for the membrane of the cervical canal about to be restored. Observe that the lines A, A', and $6'''$, $6''$, diverge toward their extremities, so that, when restored, the lower part of the cervical canal will be considerably larger than normal, and the os externum nearly double its natural size. This result is only temporary; for subinvolution and hypertrophy, dependent upon laceration of the cervix, always pertain more especially to the outer edges of the lacerated lips, and atrophy and involution following repair of the laceration must also pertain equally to the same parts, and the restored cervical canal must soon become symmetrical throughout. It is therefore evident that, if the lines A', A, and $6'''$, $6''$, had been made parallel, involution would have resulted in stenosis of the os externum.

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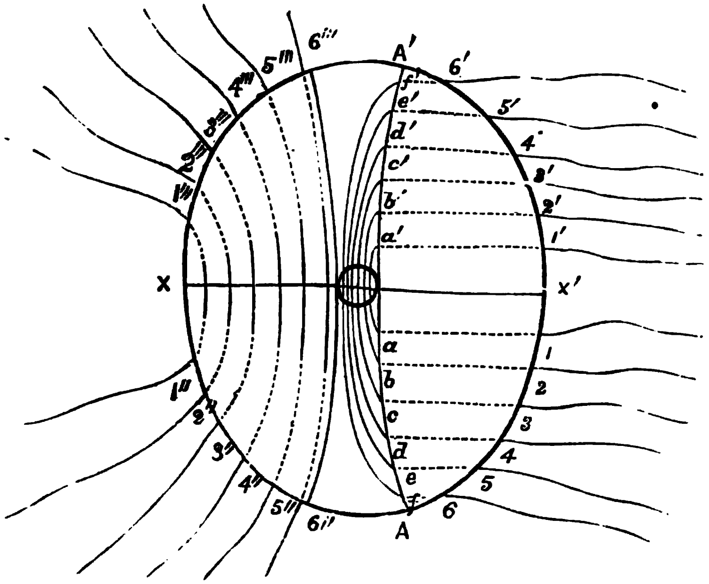
[1] This word, from τράχηλος, a neck, and ῥαφή, a suture, is here proposed as the name of the operation for repair of the lacerated cervix uteri—an operation hitherto nameless.

FIG. 1.



The lines on the right side indicate the position of the sutures, as always passed by Dr. Emmet; those on the left, as ordinarily passed.

A hard, dense, wedge-shaped piece of cicatricial tissue, which, in the attempt of Nature to repair the laceration, had formed in the angle and extended from point x to point x' (Fig. 1), was removed. Great care always should be taken thoroughly to remove all such tissue, because, if not removed, it generally renders difficult the approximation of the lips, and exerts an amount of tension on the sutures which may cause them to cut out, thereby preventing union; or if, unfortunately, there be union over such a mass of cicatricial tissue, it would certainly act as a foreign body, and, by obstructing the circulation, would cause pressure upon the fine network of sympathetic nerves with which the submucous tissues of the cervix are so richly endowed, and thus constitute a focus of irritation capable of producing a large amount both of direct and reflex neuralgia, the hidden cause of which might remain undiscovered.

The denuded surfaces were now brought into apposition and held by six silver-wire sutures on each side. All the sutures represented on the right side (Fig. 1) were then tightened and twisted; also those on the left, which had been passed, not as represented on that side of the figure, but exactly as those on the right. The denuded surfaces were thus so held in contact that the points 1, 2, 3, 4, 5, 6, *A*, coincided respectively with the points 1′, 2′, 3′, 4′, 5′, 6′, *A*′, and the points *a*, *b*, *c*, *d*, *e*, *f*, with the points *a*′, *b*′, *c*′, *d*′, *e*′, *f*′. The corresponding points on the left side, in like manner, also coincided with each other.

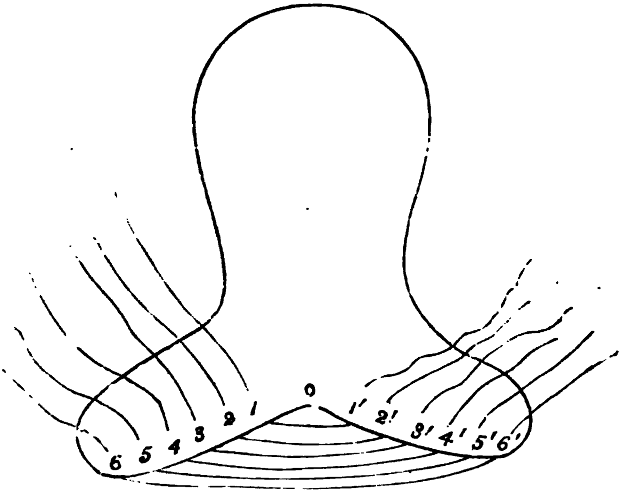
The preference for passing the sutures as shown on the right side of Fig. 1 depends upon the following considerations: The surfaces can be more readily and accurately brought in contact with each other; the sutures include a much smaller amount of tissue, and are less liable to strangulate or cut the included tissue.

Observe that the os externum, point 6, Fig. 3, corresponds in position with the angle of laceration, point *o*, Fig. 2, and that the lips of the lacerated cervix, represented by the double-dotted lines, have taken the position indicated by the line of twisted sutures, 1, 2, 3, 4, 5, 6, and not, as is sometimes supposed, that indicated by the single-dotted lines. In proof of the accuracy of this drawing, and of the inaccuracy of one in which the single-dotted lines are made to represent the repaired cervix, the following measurements are given: Before operation, the distance from the angle of laceration, point *o*, Fig. 2, to the plane of the vaginal junction, was seven-eighths of an inch. After operation, the distance from the os externum, point 6, Fig. 3, to the same plane, was not more than seven-eighths of an inch, as it evidently would have been if the single-dotted lines truely represented the repaired cervix.

Before operation, the depth of the uterus from the angle of laceration, point *o*, Fig. 2, to the fundus was four inches. After operation, the depth from the os externum, point 6, Fig.

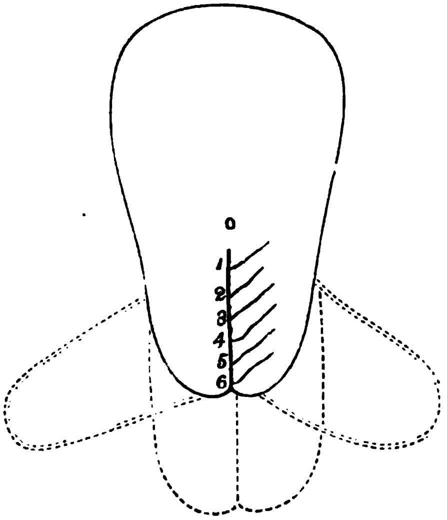
3, was three and one-half inches. This decrease in the size of the cervix and depth of the uterus is doubtless due partly to the stimulus of the operation, which tends to produce uterine contractions, partly to hæmorrhage and removal of

FIG. 2.



A lateral view of the sutures on one side, as they appeared before twisting.

FIG. 3.



A lateral view of the twisted sutures on one side of the repaired cervix.

tissue in denuding, but more especially is it explained by the fact that the operation causes the everted (not hypertrophied) tissue to be rolled back into the uterus whence it came. With this restoration, the tension and dragging on the uterine vessels, due to the eversion, are relieved, and the congested uterus is at once disgorged of much of its superfluous blood.

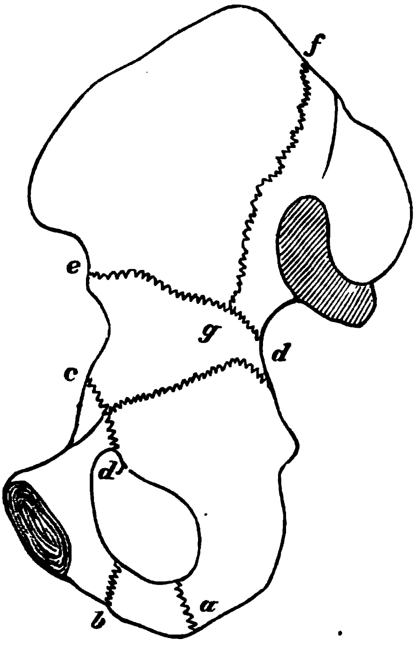
December 10*th*.—The uterus is now in a perfectly healthy condition; is only two and one-half inches deep, and so much reduced in weight that its natural supports are capable of holding it inside of the body. It is expected that an operation on the anterior vaginal wall, and another on the perinæum, will complete the cure.

Correction.—The three cuts have the common fault of not locating the first suture low enough down in the angle; i. e., in Fig. 3, for example, the first suture should be between points 1 and *o*; for experience has shown that, unless a suture be placed there, blood and uterine discharges may find their way between the flaps at that point, and, by preventing union, cause a utero-vaginal fistula.

IV.—*Remarkable Cases of Fracture.* By W. T. BULL, M.D., Surgeon to the House of Relief of the New York Hospital.

I. *Multiple Fracture of the Pelvis.*—V. S., aged seventy, a native of Germany, fell through a hatchway, a distance of about fifteen feet, December 22, 1876, striking on the right side of the body. When seen at the hospital a few minutes later, he was found to have received severe injuries to the pelvis and right shoulder. The humerus was dislocated forward and inward, so as to be situated just within the coracoid process; and on replacing the head of the bone, which was done at once by gentle manipulation, a movable fragment of the coracoid process was plainly felt below and to the inside of its normal situation.

The right lower extremity was completely helpless, but lay in a natural position. On careful measurement, a shortening of half an inch was made out. On rotation, abundant crepitus was felt in the region of the trochanter; the crest of the ileum was movable, and a fracture of the descending ramus of the pubis was felt on palpation. A pelvic girdle was applied, and the arm placed in a sling. A week later the patient was sent to his residence at the Old Men's Unsectarian Home, 521 East 120th Street. Dr. J. B. Campbell attended him, and has been kind enough to inform me that his general health continued pretty good for about two months, when an obstinate diarrhœa set in, and he died from exhaustion, March 21, 1877, three months from the day of the injury. Before the diarrhœa began he had been about his room on crutches several times, having largely regained the use of his arm, and complaining only of pain in the hip, and inability to bear weight on the injured limb. Through the courtesy of Dr. Campbell and Mr. Ramscar, the superintendent of the institution, and with the help of Dr. W. A. Jayne, I was able to make an autopsy and remove the fractured bone. The organs were remarkably healthy, except some atheromatous patches in the aorta, and some fatty degeneration of the kidneys. The bladder and urethra were quite normal. More extensive fracture of the pelvis had occurred than was supposed. With the aid of the accompanying diagram the lines of fracture may be clearly seen, while Figs. 1, 2, and 3, will show the displacement of the fragments. Through the rami of the pubes and ischium there are two oblique lines of fracture, both directed from above downward and from within outward (*a* and *b*). The body of the pubes is



fractured nearly vertically downward into the obturator foramen (*c d'*), and from the centre of this fracture there is a split through the centre of the acetabulum, extending to the greater sacro-ischiatic notch (*c d*). The anterior and upper two-thirds of the ileum are separated by two lines of fracture, one passing from beneath the anterior superior spine to the ischiatic foramen (*e d*), and joined at its posterior third by another, which descends nearly vertically from the crest, an inch in front of the sacro-iliac synchondrosis (*f g*). There are, consequently, six distinct points of fracture.

The most striking deformity occasioned by the displacement of these fragments is seen in the acetabulum. An irregular opening exists in its roof, owing to the portion *c d e* being thrown upward and forward, while the fragment *a d d'* is displaced inward and slightly forward. The piece of the rami of the pubes and ischium *a b* is moved a little downward. There is quite firm union of all these fractures except in the line *c d'*, where slight motion can be made. Considerable callus existed, and the tissues covering the gap in the roof of the acetabulum were consolidated, so that the head of the femur rested in an apparently natural socket, the attachment of the ligamentum teres being intact.

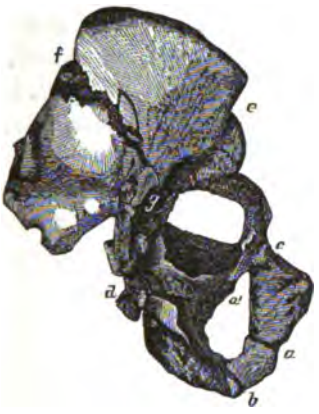
The head of the humerus was in place, and no rent discoverable in the capsule. From the tip of the coracoid process two fragments were broken off: one, attached to some fibres of the pectoralis minor, was drawn halfway to the side of the chest; the other was displaced about an inch downward by the fibres of the coraco-brachialis.

I deem this case worthy of record on account of the extent of injury to the bone following a fall, part of whose force was spent upon the shoulder; and also from the absence of damage to the pelvic viscera. It is interesting, too, to note the elaborate reparative action in an old person.

II. *Multiple Fracture of Femur* (compound).

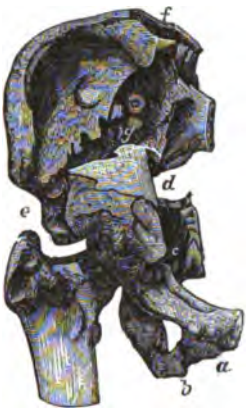
Case I.—S. M., an Irish woman of intemperate habits, and thirty-one years of age, fell from a fire-escape on the first story, July 11, 1877, and was brought at once to the hospital. She was in a semi-intoxicated condition, and suffered but little from the shock of the accident. The left lower extremity was entirely helpless and shortened, and lay with the foot everted. On the outer side of the thigh, just below its middle,

FIG. 1.



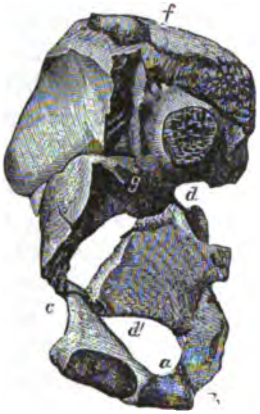
External View.

FIG. 2.



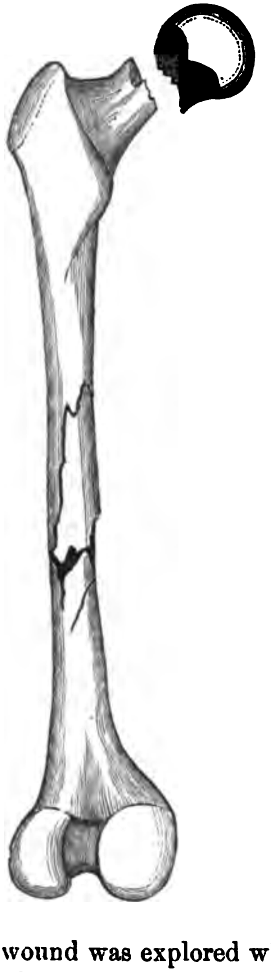
Anterior View.

FIG. 3.



Internal View.

was a wound, made by projection through the skin of the lower extremity of the upper half of the femur. There was little contusion about the hip, and no pain referred to that point. (The woman was short, and quite fat.) The finger passed into the wound, after the bone had been replaced, detected a transverse fracture an inch below the middle, and a loose fragment of small size, which was at once extracted. On measuring, the shortening was one inch and a half. Buck's extension was applied, and the wound dressed antiseptically, according to Mr. Lister's method. On the fourth day the discharges were offensive. Open treatment was pursued, but the patient died on the sixth day, with symptoms of septicæmia.



At the autopsy I was surprised to find a comminuted fracture of the neck within the capsule, in addition to the fracture of the shaft, which was found to be more extensive than was supposed, a fragment two inches long being detached from the posterior and inner surface. There was, moreover, a longitudinal fissure, running from the transverse fracture toward the condyles.[1] The cut shows clearly these fractures.

Case II.—The second case is very similar to the above. C. S., aged fifty-five, an intemperate and ill-conditioned Irish woman, fell from the roof of an out-house to the ground, a distance of fifteen to twenty feet, on September 9, 1877, and struck on the left side of the body. There was a wound on the outer side of the left thigh, communicating with a transverse fracture about the middle of the femur. The shortening was three inches. The wound was explored with the finger, several small fragments of bone removed, a counter-opening made in the posterior surface of the thigh, and an antiseptic dressing applied, with Buck's extension. A month later, a plaster-of-Paris splint was applied, there being but slight discharge and no burrowing of pus. The patient's general condition was, however, unsatisfactory, as she was troubled with cystitis and chronic bronchitis. After two weeks, Buck's extension was applied. There was no union at all. Bed-sores developed, in spite of every effort; the general condition grew worse, and she died October 28, 1877, about three months from the receipt of the injury.

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[1] Specimen exhibited at the meeting of the Pathological Society, November 28, 1877.

At the autopsy the points of fracture corresponded in situation to those of the first case; but at the neck there was no comminution, while in the shaft there was considerable. About the intra-capsular fracture there were no indications of reparative action, and in the shaft there was merely a mass of fibrous callus, half an inch in thickness, between the ends of the fragments; on their anterior surface, and about the end of the bones, which overlapped, some osteoplastic formation.

Although these two cases were compound fractures they were produced by the sort of injury which is frequently followed by simple breaking of the femur at one point; and I am inclined to believe that fracture at two points, especially in persons in whom the neck of the femur has undergone change in structure and relations, may not be rare. In such a case the fracture at the neck would naturally be overlooked, as the symptoms would be explained by the solution of continuity in the shaft. Even if it were suspected, it might be difficult to assure one's self that it existed, especially in short and fat persons.

Notes of Hospital Practice.

MOUNT SINAI HOSPITAL.

Service of Dr. A. L. Loomis.

Treatment of Acute Articular Rheumatism by Hot Packing.—The following cases are of considerable interest, as showing the results obtained from the application of warmth and moisture to patients suffering from acute articular rheumatism. The method pursued consisted in stripping the clothes from the patient, and wrapping up with a blanket wrung out of water of from 105° to 100° Fahr. A second blanket, similarly treated, was placed over the wrapping, and the whole covered with two dry double blankets. The bed was protected with India-rubber cloth. Perspiration was aided by warm, diluent drinks.

Case I.—Ellen K., aged twenty-four years; married. Admitted June 30th.

Two months before admission was delivered of a child. A fortnight later she exposed herself, and was taken down with rheumatism. It appeared first in one knee, then extended to the other knee; it then involved both hips. An interval of a week occurred between the invasion of the different joints. The pain was not sufficient to confine her to bed until two weeks before admission, when it involved the ankles and feet, and became excruciating. On admission, all of the joints were found red and swollen. Temperature 102°. Heart-sounds clear, but accompanied by a hum. Ordered quin. sulph., gr. xv.

July 1st.—Temperature 101.8°. 2 P. M., the warm pack applied. 5 P. M., pain relieved; can move the extremities without difficulty. Temperature 104.6°. Quin. mur., gr. xxv. The pack was kept on during the night. Patient perspired very freely.

2d.—A. M., 100°; P. M., 102°. Quin. sulph., gr. xx.

3d.—A. M., 101.8°; P. M., 101°. Pain has not recurred.

4th.—Slight pain in right shoulder.

5th.—A. M., 100°; P. M., 101.8°. No pain, but slight stiffness.

6th.—A. M., 100.8°; P. M., 103.4°. Pain returned in both wrists. Patient placed in pack for four hours, when pain was completely relieved.

7th.—A. M., 100.2°; P. M., 101.8°. Slight pain in right wrist.

8th.—Pain returned in knee and ankle. The pack applied to the affected extremity, which relieved pain.

9th.—Pain returned in both knees, which was relieved by pack applied to each leg.

10th.—No return of pain. Patient able to walk about.

13th.—Pain in right wrist and thumb. Pack applied to arm for three hours, when all pain was relieved.

18th.—Has had no pain since 13th. Discharged, cured.

Case II.—Abraham L., aged thirty-four years. Admitted July 11th. Had an attack of acute rheumatism twelve years ago. Two weeks ago it returned. For the past eight days has been confined to bed.

On admission, all of the joints were found affected. At 2.30 p. m. pack applied. 5.30 p. m., no pain except in right knee and ankle. 7 p. m., pain entirely relieved. The pack was not removed till 4 a. m. the following morning.

July 12th.—No pain. a. m., 101°; p. m., 102°. The patient was able to get out of bed at 8 a. m., and walk about without pain. Quin. sulph., gr. xv. Toward evening pain returned in the right wrist, shoulder, and knee. At 8 p. m. placed in pack till 6 a. m. the following morning.

13th.—Entirely free from pain. a. m., 102.6°; p. m., 101.8°. In the evening slight return of pain in right wrist.

14th.—a. m., 101.2°; p. m., 104.5°. Slight return of pain. Placed in pack from 9 a. m. till 5 p. m., when pain was completely relieved.

15th.—a. m., 102.4°; p. m., 103.6°. Slight pain in both ankles and right knee. Placed both legs in pack, when pain immediately ceased.

16th.—a. m., 101.6°; p. m., 102.6°. Slight pain in upper cervical vertebræ.

23d.—No pain since July 16th. Discharged, cured.

Case III.—James H., aged twenty-nine years. Admitted July 19th. Has had rheumatism for two days, affecting the left knee and ankle. On admission, presents no change; 101.3°. Placed in pack at 2.30 p. m. 5.30 p. m., pain greatly diminished. 8 p. m., pain completely relieved; able to get out of bed and walk about; 104.2°.

July 20th.—Pain in knees, ankles, hips, and shoulders. Placed in pack at 10 a. m. 3 p. m., no pain. 4.45 p. m., still in the pack; feels well, and wants to get up. 4.50 p. m., delirious. 4.55 p. m., cannot articulate. 5 p. m., died.

Case IV. *Gonorrhœal Rheumatism.*—Peter M., aged thirty-eight years. Admitted July 12th. Six months ago had an attack of gonorrhœa, which was followed by rheumatism, affecting both hips. He gradually improved, and by the middle of April was able to walk about. He again contracted gonorrhœa, which was followed by rheumatism, continuing till he entered the hospital. On admission is found to have rheumatism affecting all extremities, so severe that he is unable to walk, and feeds himself with difficulty. Is very anæmic. Organic murmurs are heard with both sounds of the heart. Given cod-liver oil and iron, with tinct. digitalis, gtt. x, three times a day.

July 20th.—Has more pain in legs and arms than at any time for a week. Pack applied to legs, and allowed to remain during the night.

21st.—Feels much easier.

22d.—Pain more severe in shoulders. Pack applied to shoulders and arms. During the afternoon much relieved.

23d.—Pain returned.

24th.—Pain continues. Placed in full pack for four hours, when pain was so much relieved as to allow him to get up and walk about.

August 8th.—Has had no pain for ten days.

15th.—Discharged, cured. He was under observation for three months subsequently, and no relapse occurred.

Case V.—Max. N., aged twenty-eight years. Admitted July 18th. Had pain in right elbow and metacarpal joints during past three weeks. On admission these joints were found swollen and inflamed, with the fingers contracted. Pack applied to shoulder and arm.

July 19th.—Much relieved. Treatment continued, the pack being changed twice during the day.

22d.—Pain completely relieved. Complained of anæsthesia, with diminished power in muscles. Electricity ordered.

August 2d.—Discharged, cured.

Case VI. *Failure of Alkaline Treatment—Benefit of Pack.*—Orga. K., aged thirty-three years. Admitted November 7th. Patient was delivered of a child two months ago. Three weeks afterward was attacked with rheumatism, involving the shoulders, elbows, hips, and ankles. On admission was found unchanged. Applied full hot-pack for four hours, which relieved but did not completely remove the pain.

November 8th.—Placed on full alkaline treatment.

12th.—No relief from alkaline treatment, which was stopped, and patient placed in pack for six hours, which relieved the rheumatism.

13th.—Has had no pain since use of pack.

17th.—Discharged, cured. No pain since November 12th.

CASE VII.—Jenny K., aged fifteen years. Admitted January 2d. Has had acute rheumatism for past three days, which continues on admission; 104°. Heart normal.

January 3d.—Placed in pack at noon. 6 P. M., pain relieved, but pack continued, as no inconvenience is felt by the patient. 9 P. M., pack removed; no pain; 104.2°. Quin. sulph., gr. xv.

4th.—No pain. A. M., 102°; P. M., 104°.

5th.—A. M., 101.8°; P. M., 104.4°. Slight pain in the evening; pack applied till patient perspired freely.

25th.—Discharged, cured. No pain since evening of January 5th.

CASE VIII.—Jacob G., aged fifty-three. Admitted January 18th. Had an attack of acute rheumatism three months ago, since which time has not been free from pain. On admission the knees are principally involved. Placed in a full pack.

January 19th.—Pain relieved; continued packs to legs, changing twice each day.

24th.—Treatment continued. Patient steadily improves.

30th.—Discharged, cured.

CASE IX.—Henry L., aged forty-five. Admitted January 23d. Patient has been suffering for the past five days with pain in the dorsal vertebræ and knees. Pressure over the articulations causes severe pain. Placed in full pack for three hours, when he was much relieved.

January 24th.—No pain in back. Slight pain in knees. Repeated pack for three hours, when pain was completely relieved.

25th.—No return of pain.

28th.—Discharged, cured. No return of pain since January 24th.

Case X.—Peter M., aged forty-nine. Admitted January 29th. Patient contracted rheumatism while in the army. The attack lasted for four months. Six months ago he again had rheumatism, involving the shoulders, elbows, knees, and ankles. On admission, pain was found in all of the joints of the legs and arms.

January 30*th.*—Pack applied to the lower and upper extremities for twelve hours, at the end of which time the pain was much lessened.

31*st.*—Pain continued in arms. Pack applied for twelve hours, with complete relief.

February 5*th.*—Discharged, cured. No return of pain since January 31st.

Case XI.—Joseph F., aged forty. Admitted February 2d. Has had severe pain in shoulder, knee, and foot, for four months. Placed in full pack, which relieved the pain.

February 6*th.*—Has had three packs since February 2d. Pain completely relieved.

8*th.*—Discharged, cured.

Clinical Reports of the Demilt Dispensary.

DISEASES OF THE DIGESTIVE SYSTEM.

By Dr. Daniel Lewis.

The whole number of patients treated in my class during the year covered by this report was 1,611. Of this number, 474 were males and 1,137 females. This indicates a decided predominance of diseases of the digestive organs among women—a fact often noted in private practice. A large proportion of these patients were of foreign birth, and they belonged, almost without exception, to the laboring classes, whose active habits and simple diet have been supposed to give a certain immunity from dyspepsia and indigestion. I believe that the habitual use of malt and spirituous liquors is the prime factor in the etiology of a majority of these cases.

The records from which this report has been prepared were kept by my assistants, Drs. Wyckoff and Wright, who also made the requisite urinary examinations.

Dyspepsia and Indigestion.—This class includes 532 cases—over 33 per cent. of the whole number.

This classification has been adopted because of the difficulty, and often impossibility, of making a diagnosis of the exact pathological condition.

However desirable it may be to determine just when a functional disturbance of the stomach becomes organic, where a simple irritable condition of the mucous membrane becomes a true gastritis, in many instances it does not materially affect the therapeutics of the case. Uterine diseases and dyspepsia were often associated, and the following case is very remarkable for the absence of subjective symptoms:

Mrs. M., aged forty-seven, married, native of Ireland, applied for treatment in May, 1876. She complained of pain in the epigastrium after eating, poor appetite, constipation, and general debility.

A periodical metrorrhagia was the only symptom indicating disease of the uterus, and this the patient attributed to the "change of life."

Examination revealed a cancer (scirrhus), involving the entire vaginal portion of the cervix, both walls of the vagina throughout their whole extent, as well as the anterior wall of the rectum. The disease was evidently of long standing, although there was no ulceration at the time. She did not consider the case a serious one, and made only two visits to the Dispensary. Subsequent history unknown.

Subinvolution frequently existed in these cases when they were treated by fluid extract of ergot (Squibb's) combined with the compound tincture of cinchona.

The following history is familiar to every practitioner: The patient, usually a middle-aged woman, has long complained of constipation, which a cathartic has only temporarily relieved. The appetite has remained pretty good, but a sense of fullness and eructations after eating are very troublesome. General health of the patient otherwise good. After giving the usual directions regarding diet, and insisting upon a *regu-*

lar time of going to stool daily, we have found the rhubarb and soda mixture most useful.

℞. Pulv. rhei,	ʒj.
Sodæ bicarb.,	ʒjss.
Ol. menth. vir.,	gtts. iv.
Aquæ,	℥iv.

M. S. A tablespoonful before meals.

This alkaline mixture probably owes its efficacy to its stimulating action upon the gastric glands—a property of alkalies which has been amply demonstrated by many experimenters. When an additional laxative was necessary, a compound rhubarb pill was ordered at bedtime, or, what is preferable in many cases, the pill of aloes, belladonna, and strychnia. (℞. Ext. aloes, grs. ijss; ext. belladonna, ext. nucis vom., āā gr. ¼. M. S. One at bedtime.)

In contrast with the above case are those patients who are anæmic, and complain of the symptoms common to that condition—loss of appetite, palpitation of the heart, intercostal neuralgia, and headache. In some instances this condition is a natural sequence of prolonged dyspepsia, but is more commonly dependent upon other causes, such as bad hygiene, overwork, or malarial influences. Tonic treatment is here indicated, and the following prescription is usually effective:

℞. Quiniæ sulph.,	gr. xij.
Tr. ferri chloridi,	ʒiijss.
Aquæ,	℥iv.

M. S. A teaspoonful in a wine-glass of cold water, half an hour after meals.

An aloes and belladonna pill is occasionally required at bedtime.

Plasters have been often prescribed for intercostal neuralgia in these cases. Notwithstanding the prejudice against their use, experience here has proved them to be a valuable adjuvant in the treatment.

The belladonna-plaster (4+6) is the one most frequently ordered, and next in order the capsicum-plaster (same size), as now kept by druggists. A pitch-plaster, with chloral hydrate sprinkled over its surface, was tried in several cases, but proved inferior to either of the others.

Where there was irritability of the stomach (probably gastritis), with nausea and vomiting, a bismuth mixture was often ordered.

℞. Bismuth, subnit.,	ʒ iv.
Acid. nitric. dil.,	ʒ iij.
Tr. nucis vom.,	ʒ jss.
Aq. menth. pip.,	℥ iv.

M. S. A teaspoonful after meals. Shake well before using.

Since it has been pretty clearly demonstrated that bismuth acts mechanically by adhering to the mucous coat of the stomach, it is evident that a large dose should be administered. But the *very large* doses given by Lusanne, Menneret, and others (who gave ℥j per diem), no doubt hinder the excretion of gastric juice, thereby causing the cachectic symptoms which those observers found to follow its prolonged use.

Malarial Diseases.—These stand next to the indigestions in frequency, 105 cases being recorded. Every patient was closely questioned concerning residence, and not one case of true intermittent fever was found among those who had resided in the city continuously during the year preceding the attack, and there were few exceptions to this rule among all the others where malarial infection was noted.

During the past three months (August, September, and October, 1877) many cases have occurred in patients who had spent the summer in towns on Long Island.

The treatment has been quinine in the form of Clark's powder (℞. Quin. sulph., ʒ ss.; pulv. opii, pulv. capsici, āā gr. iij. M. et div. in chart. No. iij.), given at bedtime three evenings successively. In a very persistent case more of the powders are required, but we have never prescribed more than six, with one exception. A young woman, aged twenty-one, unmarried, returned to the city about September 1st, and was attacked with chills the following day. The disease was quotidian. Three powders were ordered, and caused an intermission of one day; three more were ordered, and she escaped six successive days, when there was a very severe chill. The prescription was once more renewed, and the iron and quinine mixture given three times a day in drachm doses. The disease has not since recurred.

In the after-treatment, citrate of iron and quinine is often given instead of the mixture before mentioned.

Acute Diarrhœa and Dysentery.—Total number treated during the year, sixty-four. The so-called vegetable and mineral astringents are not prescribed in cases of diarrhœa, and in dysentery, except for their local effects. The patient is first ordered the following: ℞. Hydrarg. cum creta, gr. x.; pulv. ipecac., pulv. opii, āā gr. iij. M. et div. in chart. No. iij. S. One every six hours. This is followed by the rhubarb and soda mixture, in tablespoonful doses every four hours. Tincture of opium may be added to this mixture if anodynes are still further indicated.

The same remedies are used in acute dysentery, but my chief reliance has been upon enemata containing plumb. acetat. gr. j., morph. sulph. gr. $\frac{1}{4}$, dissolved in one ounce of ice-water. Such an enema is ordered to be given after each stool, and the results of this treatment are well shown by the following cases:

Case I.—Mrs. G., Ireland, aged twenty-eight, applied for treatment September 6th, complaining of vomiting and diarrhœa, the passages being frequent, and accompanied with pain. Ordered the blue powders, and rhubarb and soda mixture.

September 7th.—Patient unable to leave her room, and was seen at home. She was still retching, and bowels moving every few minutes; passages contained considerable blood; tenesmus severe. There was some tenderness of abdomen, and slight tympanites. Early in the morning she had a chill, but at 10 o'clock A. M. there was a temperature of 104°, and pulse 120. Lead and morphia enema ordered after each movement of the bowels. At 8 P. M. the stools were less frequent; had retained the last injection one hour; had no pain. Temperature and pulse unchanged.

8th.—Patient has slept several hours. Vomiting relieved, and the abdominal tenderness also, while there were only two stools during the night, with no tenesmus. The injections were continued during the day, as before. Temperature in the evening (8 P. M.) 101°, pulse 96.

9th.—All the symptoms better. Injections discontinued, and the rhubarb and soda continued every six hours. From this time recovery was rapid, the treatment being simply tonics, wine whey, etc.

CASE II.—Mr. B., United States, aged thirty-eight, carpenter, was attacked with acute dysentery August 1st. When I saw him the following day, passages were quite frequent, mingled with blood. There was some nausea, but little constitutional disturbance. Complained greatly of thirst. Ordered the lead and morphia injections, and small pieces of ice to allay thirst. No other medicine was given. Each injection gave prompt relief, and all treatment was discontinued after five days.

I have used this treatment in many cases in private practice, and found it very satisfactory. It seems rational to prefer remedies which act locally as well as by absorption, when the disease can be reached per rectum, rather than to depend upon the slower and more uncertain action of general remedies.

Chronic Bright's Disease.—There were only nineteen cases of Bright's disease, which is less than one and one-fifth per cent. of the whole number. These were treated by infusion of digitalis—a tablespoonful three times a day. In several instances decided improvement followed. In one notable case the dropsy entirely disappeared; the amount of albumen in the urine became almost imperceptible, and the general health greatly improved. The patient was a laboring man, forty years of age.

Ovarian Tumor.—Mrs. U., United States, aged thirty, married, and the mother of two children, came from the country, where she had been under treatment several months for ascites, supposed to be due to disease of the liver. She had been tapped several times, but the dropsy soon returned, and with increasing rapidity. Ovarian tumor was at once suspected, from the history and the perfectly healthful appearance of the patient. The tumor was as large as a child's head (it had been tapped about two weeks previously), round, tense, and the abdominal walls moved freely over it. The diagnosis was afterward confirmed by Prof. T. G. Thomas, who removed the tumor successfully, June 18, 1877.

This case is here reported simply to call attention to the error in diagnosis, which would have cost the patient her life had it not been corrected.

Cancer of the Stomach.—One patient, a man aged forty, had cancer of the stomach. This may be interesting as bearing upon the frequency of carcinoma.

Leube, in Ziemssen's "Cyclopædia,"[1] Brinton, and many other observers, declare that no organ of the body is so frequently the seat of cancer as the stomach.

The fact that only one case of carcinoma occurred among 1,611 patients, most of whom had some stomach-trouble, appears to me to be a gratifying exhibit.

Proceedings of Societies.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, November 26, 1877.

Dr. John C. Peters, President.

On the Antiseptic Treatment of Wounds and its Results.—Dr. R. F. Weir read a paper on the above subject, which may be found in the present and previous numbers of the Journal. The discussion was opened by Dr. W. T. Bull, who said, in spite of the number of failures mentioned above, he felt in every way satisfied with the method, and should continue to use it. Dr. Weir had given what he thought the chief cause of these failures, viz., the use of improperly-prepared gauze. Other causes were the difficulty of getting a satisfactory spray at the outset, the desperate character of some of the cases, and neglect of important details. In compound fractures, for instance, he had not injected the carbolic solution between the ends of the fragments, nor used enough drainage-tubes; and in the case of resection of the elbow, there were so many sinuses that it was scarcely feasible to inject all thoroughly with the chloride-of-zinc solution, and Volkmann's plan of scraping away the granulations was not pursued. One amputation of the thigh was done five days after a very severe compound fracture of both bones of the leg, for which primary operation was advised, but refused. Extensive inflammation ensued with high traumatic fever. The amputation was done as a last resort (at the request of friends of the patient); there ensued sloughing of all the tissues of the stump, and fatal secondary hæmorrhage on the sixth day. The other amputations were primary ones in traumatic cases. As soon as the discharges became offensive, the open treatment was resorted to, and all the patients recovered.

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[1] Vol. vii., page 286.

Dr. Weir had described very faithfully all the details of the method, and he felt sure that every surgeon who gave attention to them would be satisfied with the results.

One of the phenomena of the aseptic course of wound-healing, viz., the organization of the blood-clot, he had seen in a compound fissure of the skull. After the first dressing, the scalp-wound, which was at least four inches long, and had not been sewed up, was filled with a clot that adhered to its edges. It grew firmer, and contracted a little, and on the fourth or fifth day bled on being scratched. This process has been repeatedly observed. Mr. Chiene, of Edinburgh, has proposed to take advantage of it, in order to facilitate the healing of large excavated wounds.

Dr. Stephen Smith said that he would throw out the consideration of amputations in estimating the results of the antiseptic system. There were not two cases precisely alike, and, in a word, it would be found that one case would do well while another would do badly, without any comprehensible reason. Alanson reported thirty-five cases of consecutive amputations without a death. These cases had no special care taken of them, and were performed over one hundred years ago. However, in the ordinary list of cases, the antiseptic method seemed to yield better results than could be obtained without it. In regard to the use of the catgut-ligature in the continuity of vessels, he had twice used it, and no suppuration ensued. One of the patients upon whom the operation had been performed died eventually, and it was found at the *post mortem* that the ligature had been absorbed. In another case of ligature of the carotid the catgut cut through the vessel, and caused secondary hæmorrhage on the fourteenth day. Dr. Smith was of opinion that the antiseptic method would prove of great value in treating compound fractures, for in that class of cases the great desideratum was to prevent infection from reaching the wound. He had opened the knee-joint under the influence of the spray, and removed a tumor without any ill effects of the operation. Finally, Dr. Smith thought that it was very likely that in wounds of the peritoneum and contained viscera much good might result from allowing the surgeon to safely explore the cavity of the abdomen, and examine and treat any wounded viscera.

Dr. Henry B. Sands said that his experience was limited as yet in the use of the antiseptic system, but he felt willing to thoroughly test the subject. He thought that it might be well not to ignore the results obtained in the older methods of procedure. He agreed with Dr. Smith that amputations afforded no reliable guide in estimating the benefits of different systems, and was of the opinion that the English popularity of the antiseptic method was in part due to the dogmatism with which its claims were asserted. Drs. Keyes, Briddon, and Erskine Mason, continued the discussion.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, November 28, 1877.

Dr. E. G. Janeway, President.

General Peritonitis, resulting from an Old Local Peritonitis.—Dr. Lewis H. Sayre presented a specimen of intestine removed from a young man who died of general peritonitis. The patient complained of pain at the epigastrium, and thought that he was suffering from a cold, and did not realize that he was in any serious danger. Some years previously he received an injury in the right hypochondrium, and since that time there has been occasional attacks of pain near the site of injury. When he was seen by Dr. Sayre he was very restless, and in a few hours died. The specimen showed an adhesion of the small intestine to the colon at the junction of the ascending and transverse portions. The colon at that part was much expanded and thinned out. There were no signs of perforation. The recent lymph proved that the general peritonitis was of recent duration.

Senile Gangrene—Extensive Disease of the Arteries.—Dr. H. B. SANDS presented some specimens obtained from a patient who died affected with senile gangrene. The history was as follows: A man, aged forty-nine, was under the care of Dr. H. T. HANKS, and had suffered from malaria at different times. During last April he had an attack of coma, which lasted three hours. The cause was not made out, but it was suspected to be due to an embolus. Six weeks before he came under Dr. Hanks's care, he complained of severe pain in the legs, accompanied with loss of power. He spent some time in the country, and returned August 7th, when it was found that discoloration existed in the vicinity of the toes of left foot. Four days later it appeared in the right. Both legs were cold, and arterial pulsation could not be detected below the apex of Scarpa's space. On August 15th several toes were found to be discolored. The heart was examined. It was feeble and irregular, but no murmurs were heard. Dr. Sands again saw the patient in October. The gangrene had extended to the tarso-metatarsal joints. The urine was carefully examined, but there was no evidence of renal disease. A line of demarkation subsequently formed, but a few days before death the gangrene extended and passed above the ankles. The question of amputation was raised, but decided in the negative. At the autopsy, the aorta was found to have become extensively degenerated, there being hardly a portion of its inner coat that was not involved. The left femoral was completely occluded below the origin of the profunda. The kidneys were granular, and of particular interest, inasmuch as the urine was examined, and no signs of Bright's disease made out. The heart showed the presence of mitral stenosis, as well as insufficiency of the aortic valves. The right lung was adherent to the chest wall. The left pleura contained an effusion.

Caries of Knee-joint.—Dr. Briddon presented a specimen of caries of the knee-joint. The patient was aged twenty-one, and one year before coming under observation had sprained his knee. When he was seen by Dr. Briddon, there were evidences of chronic synovitis. The patient did not improve under treatment, and it was deemed advisable to amputate. The operation was performed at the lower third of the thigh, under the influence of the antiseptic spray. The arteries were tied by carbolized catgut-ligatures, and the wound dressed in the manner advised by Lister. Secondary hæmorrhage took place, but was controlled.

Dr. Erskine Mason recited the histories of three cases in which secondary hemorrhage occurred after the use of the catgut-ligature. Dr. Sands had noticed that the catgut-ligature proved of service in ovariotomy. In one case in which it was used by Dr. Markoe, in ligature of the femoral artery for popliteal aneurism, union of the wound took place by first intention, but ten days subsequently pulsation returned. Dr. W. T. Bull had found in one case of amputation of the thigh that secondary hemorrhage occurred after the artery had been securely tied with the catgut-ligature, but there was sloughing of one flap, and severe inflammation of the stump, involving the artery.

Compound Comminuted Fracture of the Femur.—Dr. W. T. Bull presented a fractured femur which had been removed from a woman forty-five years of age. The patient fell from a fire-escape, and on examination there was found to be a compound comminuted fracture of the femur, with an opening on the outer side of the thigh. The wound was treated by the antiseptic method, but on the third day proved to be unsuccessful. Death occurred on the sixth day, from septicæmia. At the autopsy it was found that there was a fracture of the shaft of the bone, also a vertical comminuted fracture of the neck, which could not be detected before death.

Irregular Cases of Typhoid Fever.—Dr. Janeway presented a portion of the intestines and spleen of a patient dying from typhoid fever which had run an irregular course. He referred to the histories of several cases developing in the same house. In one case there was no epistaxis, no diarrhœa, but there were lenticular spots on the abdomen. In three cases there was no diarrhœa to speak of. The patient from whom the specimens had been obtained died on the twelfth day. The spleen was of normal size, but the other typhoid lesions were characteristic. The solitary follicles were particularly affected.

Stated Meeting, December 12, 1877.

Dr. E. G. Janeway, President.

Congenital Deformity.—Dr. Putnam Jacobi presented to the Society a child aged five months which showed several interesting deformities. There was anchylosis of both elbows, partial on one side, and nearly complete on the other, with paralysis of the extensor muscles of the forearm. The flexors were also paralyzed, but in a less degree. The feet were in a condition of talipes equinus. The legs could not be completely extended. Dr. Putnam Jacobi said an interesting feature of the case was its etiology, which would seem to be due to some centric lesion. The infant did not seem to be idiotic.

Visceral Sarcoma.—Dr. Briddon presented several specimens of cystic sarcoma removed from a woman aged twenty-four. The patient entered the Presbyterian Hospital, June 2, 1877, suffering from a movable tumor the size of a cocoa-nut, situated in the gluteal region. It was removed June 7th, but returned June 20th, in the track of the drainage-tube. A close examination of the wound showed the manner of growth. This was exemplified by the granulations, which increased in size, then became œdematous, until the ordinary character of the cystic sarcoma became manifest. After the return of the neoplasm in the course of the drainage-tube, it was scooped out, but reappeared after ten days, when it was again removed in a similar manner, and a solution of chloride of zinc applied. The wound had completely cicatrized by August 15th, at which time she left the hospital. There was, however, in the cicatrix, a tumor the size of a nut. The patient returned to the hospital October 13th. It was then found that two tumors existed in the right gluteal region. They were removed by an incision which was ten inches in length, and extended from the floating ribs to the trochanter major. The patient did not do well after the operation. There developed symptoms of pneumonia, and, on examining the chest, signs of consolidation were discovered at the base of the right lung. Death took place by exhaustion.

Autopsy.—The heart was dislocated to the left. The right lung was adherent, and filled the cavity of the right chest. It weighed 46 oz. The upper lobes were normal. The lower lobe presented the appearance of a pulpy mass. This was due to the presence of a sarcomatous tumor, which did not involve the pleura. The left lung was slightly diminished in size from compression of the right. The liver was the seat of sarcomatous growth, and weighed 6 lbs. 12 oz. The spleen weighed 25½ oz. The upper part was normal, but the lower portion contained a sarcomatous tumor.

Dr. Briddon said it was of interest to note the tendency of the tumor to reproduce itself in the track of the drainage-tube and sutures.

Sarcoma of Humerus.—Dr. C. M. Allin presented a portion of different viscera which he had taken from a patient suffering from sarcoma. The patient was a young man, and was admitted to hospital April 3, 1877. His family history was good. The first sign of disease noted was the occurrence of pain between the elbow and shoulder, and during December, 1876. The shoulder was found to be swollen. The swelling extended, and in three months involved the forearm and hand. On admission, a tumor was noticed two inches below the head of the humerus. This steadily increased, and was accompanied by a feeling of numbness over the surface of the growth. The right arm below the axilla measured seventeen inches, the left twelve inches. Subsequently, the affected arm measured eighteen inches, the left twelve inches. It was decided to amputate at the shoulder-joint. On examining the humerus after the operation, it was found to be surrounded with a sarcomatous mass extending down to the lower fourth. This mass was found to be both external and internal to the periosteum. For two weeks the patient did well, but on April 30th pain was complained of in the wound, which continued for a month.

May 30th.—Pain was felt in the chest, but no sign of thoracic disease could be made out.

June 5th.—An abscess which had formed discharged. It was found also that a painless tumor had returned in the cicatrix.

July 5th.—Another swelling appeared.

July 25th.—The tumor reached above the scapula. Pain was complained of in the left thigh.

October 1st.—A large mass of the tumor sloughed out. Patient much weaker. Died from exhaustion.

October 20th. Autopsy.—The whole of the scapula was found to be involved, with the exception of a narrow margin on the posterior border. The clavicle and acromion process were not involved. The scapular muscles were displaced by the growth. Pleuritic adhesions were found, but no fluid. There was a hard deposit in the right lung. The mesenteric glands were enlarged, and white. A small tumor was found contiguous to the vena cava, and in it was found a thrombus. A tumor was found in the hollow of the sacrum, which put the lumbar plexus on the stretch. In the iliac vein were found fibrine and some of the sarcomatous growth. There was œdema of the lower extremities, but no ascites.

Dr. Allin also presented some drawings, showing the microscopical character of the growth, and the appearance of the sarcoma in the vein.

Dr. JANEWAY was of the opinion that the sarcomatous matter found in the vein was the result of contiguity of tissue.

Dr. SELL recited the subsequent history of a patient from whom a sarcomatous mamma had been removed, and presented to the Society. After the operation the wound healed up, but after six weeks a tumor appeared in the cicatrix. After this had reached the size of the first, the patient passed under the care of a cancer-doctor. He applied a paste, and eventually sloughed it out, leaving a large granulating surface, which did not heal. The tumor reappeared in the sore.

Dr. Sell understood that during the treatment the patient died suddenly, but no *post mortem* was obtained.

The specimen which was presented to the Society proved to be alveolar cancer.

Epithelioma of the Upper Lip, involving the Ala Nasi.—Dr. POST presented an epithelioma of the upper lip which he had removed from a man forty-five years of age. The disease made its appearance when he was twenty-three years old, and in the eighteen years of its course involved the right side of the upper lip and part of the ala nasi. After the removal of the epithelioma, a plastic operation was required to bring the flaps together. Dr. Post said it was rare to find epithelial cancer commencing in so young a patient. Dr. Briddon had removed an epithelioma from the same region a few months ago. A plastic operation was required to adjust the flaps.

Compound Fracture of Humerus.—Dr. ERSKINE MASON presented a man to the Society who had received a compound fracture of the condyles of the humerus. He was forty-five years old and a car-driver by occupation. The injury was received by being dragged over the dashboard of the car. He was admitted to Bellevue Hospital March, 1877, and on examination there was found only a slight external wound. It was proposed at first to seal up the opening, in preference to performing resection of the elbow.

March 27th.—Phlegmonous erysipelas developed, and extended to the arm and shoulder. The suppuration was extensive, and for two weeks the temperature ranged between 104 and 106.

April 20th.—The external condyle came away, and one week later the internal condyle was taken out. Subsequently a portion of the head of the radius was also discharged.

May 16th.—The patient sat up for the first time. After the wounds healed, the elbow, wrist, and phalangeal joints were firmly anchylosed, but by persistent passive motion the patient had excellent use of his elbow as well as of the other joints. Passive motion was commenced. Dr. Mason said the case might in one sense be considered as one of spontaneous resection. Ins ealing up the wound when the patient was first seen, the intention was to perform resection later if it was found to be indicated.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, December 6, 1877.

Dr. S. S. PURPLE, President.

Alimentation in Surgical Accidents and Diseases.—Dr. FRANK H. HAMILTON read a paper on the above subject, in which he urged that alimentation should be more studied in the treatment of surgical cases than it was. He said that in hospitals there was a tendency to cut off extra diet, though liquors and medicines were given freely. He suggested also that it would be a wise plan to attach a diet-kitchen to dispensaries.

Dr. POST said that in some periods of a disease, as in the hot stage of intermittents, alimentation was scarcely possible, even were it indicated; and he thought in many cases that it would be well to allow the stomach rest for a few hours or a few days, if found necessary. There could be little doubt, however, as to the general indication of alimentation in all diseases.

Dr. ANDREW H. SMITH said it should be borne in mind that the introduction of alimentary matters into the stomach did not always mean alimentation. It was known that the blood would take up only a certain amount of oxygen, and he was of the opinion that it was much the same in regard to articles of nutrition. If more were absorbed than could be assimilated, they would be thrown off.

Bibliographical and Literary Notes.

ART. I.—*Lectures on Practical Surgery.* By H. H. TOLAND, M. D., Professor of the Principles and Practice of Surgery, and Clinical Surgery, in the Medical Department of the University of California. Philadelphia: Lindsay & Blakiston, 1877.

AT the request of the students of the University of California, the author, whose "engagements are so numerous" that he "could not find time to write a book with the scientific accuracy of some that have been published," has consented to have his extempore lectures appear in the above form. They make a volume of five hundred pages, which is exceedingly creditable to the publishers, but which exhibits the author in the light of an ignorant surgeon and a very unsafe teacher. To be sure, he makes no claim to "scientific accuracy," but that is no excuse for the numerous errors and misstatements which are to be found on almost every page. What can be more glaring than the assertion that patients with diphtheria who are subjected to tracheotomy "always die" (p. 345)?—or that, "when a bone is diseased and not necrosed, it is called caries" (p. 313)?—or than the following: "When a man in good health falls, and remains in a state of more or less insensibility, that condition is called apoplexy" (p. 378)? Such inaccuracies might be attributed to the looseness of language which is often exhibited in extempore lectures, but that does not explain other statements made on the strength of the author's own experience, and which are certainly at variance with those of most authorities. For instance, we are told that "amputation of the hip is much better than resection" (p. 335) in morbus coxæ, and advised never to "open either the larynx or trachea" in diphtheria (p. 345); and assured that the success of an amputation "depends more upon the manner in which the stump is dressed than upon everything else combined," and that "many lives have been sacrificed by endeavoring to heal the wound by the first intention." The antiseptic method of treating wounds, introduced by Mr. Lister, is not mentioned; nor Esmarch's plan of preventing bleeding during operations. Water-dressing is recommended, and the student is taught that the choice of an anæsthetic (between ether and chloroform) depends on the character of the case and the age and condition of the patient; that the success of the surgeon depends more upon a knowledge of the virtues of the anodynes than upon everything else combined (p. 47). The symptomatology and treatment of hysteria are summed up in this sentence: "Whenever a female, if married, complains of a choking sensation, which continues constantly, or may recur at intervals, always examine the uterus with a speculum, and, if inflamed or ulcerated, cauterize the mucous membrane, or the ulcer, with nitrate of silver every alternate day" (p. 395).

In spite, however, of many inaccuracies, these lectures, or some of them—that on hernia, for instance—convey much information in a concise manner, and, if one is able to distinguish between the wheat and the chaff, their perusal may be profitable. One feature the most careless reader cannot fail to notice: that is, the high value which the author sets on his own performances in surgery. These are described in glowing terms and bombastic style, of which, we think, no man of scientific aspirations ever would be guilty. A prescription, given in full, is spoken of as "the best combination of remedies that has ever been suggested" (p. 325); and the fortunate termination of a case of synovitis of the knee-joint (due to puncture of a nail, and treated with hot fomentations, and morphia internally), is called "the most remarkable and unexpected cure that ever occurred, either in this or any other city" (p. 324). The achievements of other surgeons find but brief and occasional mention, unless we except Dupuytren and his contemporaries, with whose teachings, we are constantly informed, the author was made familiar during a residence in Paris. This may have prevented his learning something of surgical practice at home, and will account for his statement that "diseases of the eyes, both in this and other cities of the United States, are treated by quacks" (p. 407).

ART. II.—*Modern Medical Therapeutics, a Compendium of Recent Formulæ and Specific Therapeutical Directions, from the Practice of Eminent Contemporary Physicians, American and Foreign.* By GEORGE H. NAPHEYS, A. M., M. D., etc. Fifth edition, enlarged and revised. 8vo, one volume. Pp. 600. Philadelphia: D. G. Brinton, M. D., 1878.

Modern Surgical Therapeutics, a Compendium of Current Formulæ, Approved Dressings, and Specific Methods for the Treatment of Surgical Diseases and Injuries. By GEORGE H. NAPHEYS, A. M., M. D., etc. Revised to the most recent date. 8vo, one volume. Pp. 600. Philadelphia: D. G. Brinton, M. D., 1878.

OF these two portly volumes we can safely say that they generously fulfill the design of the author, and give evidence of untiring industry in the collection of suitable material. The work on medical therapeutics has been for several years familiar to the profession, but the present edition is much enlarged and improved.

The volume on surgical therapeutics is an attempt, and a very successful one, to present in concise form the favorite formulæ and methods of eminent surgeons of modern times. A large part of the material has been collected from books, journals, and monographs; but it is claimed that a considerable amount of the material has been obtained from private sources, and is now published for the first time. The labor involved must have been immense, and the result is a book of decided interest, and of much value both to the surgeon and the general practitioner.

The usefulness of each volume is enhanced by three separate indexes: one, of the authors cited; one, of remedies and remedial measures; and one, of diseases.

ART. III.—*Medical and Surgical Reports of the Boston City Hospital.* Second Series. Edited by DAVID W. CHEEVER, M. D., and F. W. DRAPER, M. D. 8vo, pp. xxxvi.-816. Boston: Board of Trustees, 1877.

THE first article in the present volume of "Reports" is a "Description of the Hospital," occupying about twenty-seven preliminary pages, besides the plates. In the body of the volume there are sixteen articles on scientific subjects, all of which are interesting, and many are on rare diseases, involving the discussion of difficult questions.

Dr. John D. Blake contributes an article upon the "Treatment of Empyæma by Permanent Openings, with Cases," to which is appended a table of nineteen cases. "Unusual Operations on the Genital Organs" is the title of an interesting article by Dr. David W. Cheever. Dr. Robert T. Edes writes a good paper "On Certain Diseases of the Nervous Centres." "Compound Fractures" is the title of an article by Dr. G. W. Gay. Dr. O. F. Wadsworth contributes a paper "On Albuminitic Retinitis," with some beautiful plates. Dr. C. Ellery Stedman contributes "A Case of Large Renal Calculi," with a lithograph. "Disease of the Brain in its Relation to Inflammation of the Ear" is contributed by Dr. J. Orne Greene. Dr. Hall Curtis contributes "Notes of Cases of Pleurisy and Paracentesis Thoracis." Dr. Cheever writes "On Excision of the Elbow-Joint," giving two successful cases, with the autopsy of a case several years after the operation (which was performed at the age of fourteen), showing the development of bone, and the effort of Nature to make a new bony joint. Photographs accompany the text. Dr. Howard F. Damon publishes "Clinical Notes of Erythema," with numerous illustrative cases. Dr. S. G. Webber writes upon "Sclerosis of the Spinal Cord."

Dr. Edes writes upon the "Cold-Water Treatment of Typhoid Fever." While there is nothing new in this paper, the author recommending the graduated bath, we could wish that all practitioners would follow his precepts. We are in the habit almost always of supplementing the treatment with quinine, after the manner of Liebermeister. We think the author should recommend the practitioner to leave a thermometer with an intelligent member of the family or nurse, in order that the bath might be given when actually needed, rather than to administer by guess, or by the knowledge gained by taking the temperature once or twice daily.

Dr. Cheever furnishes a very valuable "Surgical Abstract." Dr. W. P. Bolles furnishes "Cases, with Autopsies." Dr. James R. Chadwick writes upon "The Significance of Pus in Ovarian Fluids." Dr. B. F. Gorman furnishes "Statistics of Major Amputations."

ART. IV.—*Transactions of the International Medical Congress of Philadelphia*, 1876. Edited [illegible] the Congress by JOHN ASHHURST, Jr., A. M., M. D., Professor of Clinical Surgery in the University of Pennsylvania, etc. Philadelphia: Printed for the Congress, 1877.

THIS volume of 1,153 pages contains all the addresses delivered before the Congress in its general sessions, and nearly all the papers read in the different sections, with abstracts of the more important discussions. It contains also a list of the officers and members of the Congress, the address of welcome, of Prof. Gross, and a brief account of the origin of the Congress and of the Centennial Medical Commission.

It would require a volume if we were to attempt a critical review of the many addresses and papers that compose the Transactions. We can only say that the editor has done his arduous duty with much ability and discretion, and that, so far from complaining at the delay in the appearance of the work, we are inclined to wonder that it has been made ready so soon, and with so much satisfaction to all concerned. A handsomer volume would have involved an additional assessment, and the committee of publication probably acted wisely and for the interest of the majority of the profession in keeping the expense within very reasonable limits.

ART. V.—*A Treatise on the Pathology of the Urine, including a Complete Guide to its Analysis.* By J. L. W. Thudichum, M. D. Second edition. Philadelphia: Lindsay & Blakiston, 1877.

WE are glad to see a second edition of this valuable work, and heartily recommend it to those who wish to pursue the study of urine and the pathological significance of its various conditions a little further than the text-books lead them. It will be found, as the title has it, "a complete guide" to the analysis of urine, and yet simple enough in general directions to be available for daily use. In the many difficulties that inevitably arise in this branch of investigation, Dr. Thudichum's treatise will be found an acceptable and helpful companion alike for purposes of study and for reference.

ART. VI.—*Transactions of the New York Pathological Society.* Vol. II. Based on the Proceedings of the year 1875, and largely supplemented from the Records of 1844 to 1877. Edited by JOHN C. PETERS, M. D., etc. 8vo, pp. xvi.–291. New York: William Wood & Co., 1877.

THE second volume of the New York Pathological Society seems as full of interest as did the former volume, which we noticed not long since. This volume comprises cases involving the abdominal cavity, many of which, from their rarity, will prove invaluable to the thorough student of medicine. We are promised another volume in 1878 or '79, and are told that "material still more valuable than that already published exists in abundance." We hope the efforts of the society to publish their rich material will be furthered by a liberal subscription on the part of the profession.

ART. VII.—*Materia Medica for the Use of Students.* By JOHN B. BIDDLE, M. D., Professor of Materia Medica and General Therapeutics in the Jefferson Medical College, etc. Eighth edition, revised and enlarged, with numerous illustrations. Philadelphia: Lindsay & Blakiston, 1878.

THIS work is too well known to require special notice. The author informs us in the preface that much of the matter has been recast and rewritten for the present edition, and the whole work brought up to the existing status of pharmacological science. The popularity of the work is abundantly attested by the continued demand for it. It is only a little more than a year since the issue of the seventh edition.

ART. VIII.—*Transactions of the College of Physicians of Philadelphia.* Third Series. Vol. III. 8vo, pp. xxiv.-214. Philadelphia: Lindsay & Blakiston, 1877.

ALTHOUGH the number of articles in this volume of the "Transactions of the College of Physicians" is not large (thirteen in all), they are of exceptionally good character, and will all of them well repay perusal. It contains papers read before the college from October, 1876, to July, 1877, inclusive. This is the tenth volume published by the society, and we may say that it is in no way inferior to those previously noticed by us.

ART. IX.—*The Physician's Self-Copying Prescription-Book and Blanks.* By WENDELL A. ANDERSON, M. D. Chicago: Hadley Bros. & Co.

THIS is a simple means of making a copy of prescriptions by means of a sheet of impression-paper placed beneath the blank while writing. The pressure with the pencil gives a legible duplicate. We have seen the same plan in private use for many years.

BOOKS AND PAMPHLETS RECEIVED.—Diseases of the Nervous System, their Prevalence and Pathology. By Julius Althaus, M. D., M. R. C. P., London, Senior Physician to the Hospital for Epilepsy and Paralysis, Regent's Park, etc. New York: G. P. Putnam's Sons, 1878.

A Compend of Diagnosis in Pathological Anatomy, with Directions for making Post-Mortem Examinations. By Dr. Johannes Orth, First Assistant in Anatomy at the Pathological Institute in Berlin. Translated by Frederick Cheever Shattuck, M. D., and George Krans Sabine, M. D. Revised by Reginald Heber Fitz, M. D., Assistant Professor of Pathological Anatomy in Harvard University. With numerous additions from MS. prepared by the author. Sole authorized English edition. New York: Hurd & Houghton, 1878.

The Sanitary Condition of Portland. A Report presented to the Maine Medical Association, June 14, 1877. By Frederic Henry Gerrish, M. D., Professor of Materia Medica and Therapeutics, and Lecturer on Public Health, in the Medical School of Maine, etc., etc. Reprinted from the "Proceedings of the Association."

Diseases of the Nasal Cavity and the Vault of the Pharynx. Translated from the German of Dr. Carl Michel, of Cologne on the Rhine, specialist in Laryngo- and Rhino-scopic Surgery, with an Introduction by E. L. Shurley, M. D., and C. C. Yemans, M. D., of Detroit, Michigan. First American edition. Detroit, Michigan: C. Jung, 1877. Pp. 109.

Public Hygiene in America: Being the Centennial Discourse delivered before the International Congress, Philadelphia, September, 1876. By Henry I. Bowditch, M. D. With Extracts from Correspondence from the Various States. Together with a Digest of American Sanitary Law. By Henry G. Pickering, Esq. Boston: Little, Brown & Co., 1877. Pp. 498.

The Virus of Venereal Sores: its Unity or Duality. By Freeman J. Bumstead, M. D., Late Professor of Venereal Diseases in the College of Physicians and Surgeons, New York. Extracted from the "Transactions of the International Medical Congress," Philadelphia, September, 1876.

Lectures on Clinical Medicine. Delivered in the Royal and Western Infirmaries of Glasgow. By Dr. McCall Anderson, Professor of Clinical Medicine in the University of Glasgow. With Illustrations. London: Macmillan & Co., 1877.

Surgery, Past, Present, and Future, and Excessive Mortality after Surgical Operations. Two Addresses to the British Medical Association, 1864 and 1877. By T. Spencer Wells, F. R. C. S., Surgeon to the Queen's Household, etc., etc. London: J. & A. Churchill, 1877. Pp. 49.

Fistula in Ano—a Double Case. One treated by the Knife, the other by the Elastic Ligature. By C. F. Maunder, Surgeon to the London Hospital. London: J. & A. Churchill. Pp. 6.

Notes of the Crania of the Botans of Formosa. By Stuart Eldridge, M. D. Read before the Asiatic Society of Japan, March 14, 1877. Yokohama: *Japan Mail* Office.

Retarded Dilatation of the Os Uteri in Labor. Two Papers read before the Philadelphia County Medical Society. By Albert H. Smith, M. D. Reprinted from the *Medical and Surgical Reporter*.

Excision of the Knee-Joint. By George E. Fenwick, M. D., Professor of Surgery, McGill University, Montreal. From the "Transactions of the Canada Medical Association."

On the Use of Alcoholic Liquors in General, and of the Wine of St. Raphael in Particular, in Temperate and Cold Countries. By Dr. Bouchardat, of Paris.

Proteus or Unity in Nature. By Charles Bland Radcliffe, M. D., Author of "Vital Motion as a Mode of Physical Motion," etc. Second edition. London: Macmillan & Co., 1877.

The Action of Medicines. By Isaac Ott, A. M., M. D., formerly Demonstrator of Experimental Physiology, University of Pennsylvania. With Twenty-two Illustrations. Philadelphia: Lindsay & Blakiston, 1878.

Typical Case of Addison's Disease; with Remarks. By George Ross, A. M., M. D., Professor of Clinical Medicine, McGill University, Montreal.

The Drunkard's Diseased Appetite: What is It? If Curable, how? Printed at the Inebriate's Home for King's County, Fort Hamilton, N. Y.

On Paying Wards in Public Hospitals. By John Blair, M. D., F. R. C. S., Surgeon to the Alfred Hospital.

Mental Hygiene for Pupil and Teacher. By Eugene Grissom, M. D., LL. D., Raleigh, N. C.

Ninety-Fifth Annual Catalogue of the Medical School (Boston) of Harvard University, 1877-'78.

Report on Otology. A Paper read before the Maine Medical Association, June 12, 1877. By E. E. Holt, M. D., of Portland.

Annual Report of the Surgeon-General United States Army, 1877.

Reports on the Progress of Medicine.

CONTRIBUTED BY DRS. GEORGE R. CUTTER, EDWARD FRANKEL, AND W. T. BULL.

SURGERY.

Treatment of Cracked Nipples.—The success obtained by M. Chéron with picric acid in the treatment of anal fissure suggested the use of this remedy for the relief of fissured nipples. The result was, that the pain disappeared in a short time, and morbid "secretions" were checked. The fine epidermis of the nipple was, so to speak, tanned, and rendered much less susceptible to alterations. In seven cases a complete cure was accomplished in from six to seven days. Cessation of pain is obtained already at the end of twelve to twenty-four hours, and lactation can be continued, as the child is not repulsed by the bitterness of the remedy. It is especially necessary that the picric acid should be chemically pure, completely deprived of soda. Two solutions are employed, one concentrated: Picric acid, 13 grammes; distilled water, 1,000 grammes; the other, 1 : 1,000. The extremity of the breast is well cleansed with tepid water and a fine sponge, the concentrated solution is then penciled over the fissures and inflamed points, once every morning, and after each nursing the nipples are bathed for three or four minutes in the weaker solution.—*Courrier Méd.* and *Gaz. Méd.*, 31, 1877. E. F.

Reproduction of Cartilaginous and Osseous Tissue.—At the Académie des Sciences, June 4, 1877, M. Peyraud observed that in 1867 Legros had exhibited cicatrices of cartilage containing numerous chondroplasts. Before him authors believed that the repair of cartilage only took place by fibrous tissue. In 1868 Peyraud demonstrated the regeneration of cartilage. In his experiments he preserved the perichondrium, and the resected portion was reproduced entire. In experiments similar to those of Heine with the periosteum, he found that the functions of the perichondrium were similar to those of the former membrane. When it is preserved in the resection, the cartilage is always reproduced; when removed, reproduction never takes place.—*Gaz. Méd. de Paris*, 2, 1877. E. F.

Hypodermics of Ergotine for Neuralgia.—Dr. S. S. Marina refers to the studies of Eberthy and Holmes on the physiological effects of ergot on the vascular system. The contraction of the vessels under the influence of ergot has been placed in evidence, and vulgarized by the experiments on animals and the clinical observations of Brown-Séquard. This action is indubitable. It is equally certain that many neuralgias are accompanied by hyperæmia. For this reason the author—relying in part on the doctrine of Kitchen, who recognized two different actions of ergot, one on the smooth fibres, the other on the nervous system, especially the sympathetic; and, on the other hand, on the experiments of Duboué—the author, we say, tried ergot in neuralgias, and reports certain clinical observations which demonstrate its efficacy. These observations are eleven in number, from which he draws numerous conclusions. We will refer only to the first, in which he asserts that, "in clavis solaris and tic douloureux, local hypodermic injections of ergotine produce very rapid effects, which are sure, and superior to all other remedies, without excepting quinine, and preferable to all of them." This assertion, which is so absolute and so generalized, applies only to five of the eleven cases reported. The others are cases of hemicrania and sciatica.—*Jour. des Sciences Méd. de Louvain*, August, 1877. G. R. C.

On Puncture of the Bladder.—MM. Deneffe and Van Wetter have collected a large number of cases, to ascertain the comparative danger to life from the different methods of vesical puncture. Puncture through the perinæum has been long since given up, and neither the pubic nor subpubic method is known to have been practised more than once. In ninety-seven cases of rectal puncture there were eleven deaths, while one hundred and fifty-two cases of hypogastric puncture gave but six deaths. (As to the distance of the anterior fold of the peritoneum from the symphysis pubis, when the bladder is distended, the authors conclude that it is seven centimetres, and consider one and one-half centimetre to five centimetres as absolutely *sure*. Sappey gives three to four centimetres.)

The hypogastric method is to be preferred to the rectal, because there is less danger of urinary infiltration, and no risk of wounding the peritoneum, which varies more in the extent of its attachment to the base of the bladder than to the fundus and anterior wall. Two other advantages of this method are, that it permits retro-urethral catheterism, and that a canula can be longer now without inconvenience.

Preference is given to the ordinary trocar, though the value and perfect innocuousness of capillary puncture, with aspiration, is recognized (fifty-seven cases are cited without any accident). In conclusion, the authors agree with J. L. Petit that, as regards its danger, vesical puncture is a "mere sword-thrust into water" ("De la Ponction de la Vessie." Par MM. Deneffe et Van Wetter).—*Rev. Mens. de Méd. et de Chir.*, September, 1877. W. T. B.

OBSTETRICS.

Fœtal Temperature.—With the object of demonstrating that the fœtus derives part of its caloric from itself, Bärensprung, Schäfer, and Wurster took the temperature of the infant immediately after its birth. Their results were not concordant; they found this temperature sometimes higher, sometimes lower, than that of the mother.

Alexeeff (*Archiv f. Gynæk.*, Bd. x., Heft 1) has repeated these experiments by introducing, *before birth*, the bulb of the thermometer either into the rectum of infants presenting by the breech, or into the mouth of those presenting by the face. He obtained the following results:

Anal Temperature of the Infant.		*Maternal Temperature taken at Same Moment.*
First case	39.6, 38.7, 38.6.	38 (axilla), 38.3 (vagina), 38.4 (rectum).
Second case	38.6, 38.5, 38.5.	38, 37.8, 37.5 (axilla).
Third case	38.3, 38.2.	37.6 (vagina), 37.6 (rectum).
Fourth case	38.5.	37.8 (vagina).

Buccal Temperature of the Infant.		*Maternal Temperature.*
First case	38.2, 38.4, 37.6.	37.1 (rectum), 37 (vagina), 37.3 (uterus).
Second and third cases	37.9, 37.8.	37.2 (vagina), 36.6 (uterus).
Fourth case	38.1.	37.8 (uterus).

It appears, from these measurements, that the fœtal temperature is superior to the maternal by several tenths of a degree.—*Jour. des Sciences Méd. de Louvain*, August, 1877. G. R. C.

Miscellany.

Appointments, Honors, etc.—Prof. Conner, of the Medical College of Ohio, has been appointed to the chair of Surgery in the Dartmouth Medical College, in place of the late Prof. Crosby. Prof. Louis H. Duhring has received the appointment of Dermatologist to the Philadelphia Hospital. Dr. J. Herbert Claiborne has been elected President of the Virginia State Medical Society.

Dr. Thomas Stevenson has been appointed to the chair of Medical Jurisprudence at Guy's Hospital, vacant by the resignation of Dr. A. Swayne Taylor. Dr. Edward Hamilton has been elected President of the Pathological Society of Dublin. Thomas Darby, F. R. C. S. I., has been elected President of the Obstetrical Society of Dublin for the session of 1877–'78. Dr. Joseph Patrick Pye has been appointed to the chair of Anatomy and Physiology in Queen's College, in place of Dr. Cleland. Dr. J. Halliday Croom has been elected one of the Ordinary Physicians of the Royal Maternity Hospital, Edinburgh, in place of Dr. J. Matthews Duncan. Cambridge University, England, has conferred the degree of Doctor of Laws upon Charles Darwin. Prof. Köbner, of Breslau, has resigned his clinics for skin-diseases and syphilis, on account of illness. He is succeeded temporarily by Dr. Oscar Simon, of Berlin.

Death from Ether.—The *Medical Times and Gazette* of November 17th reports the death on November 5th of a Miss Steele, during the administration of ether, for a proposed operation for cancer of the breast. After a few inhalations the face became turgid and the hands white, and, though active measures were immediately adopted, the patient died a few seconds later. A *post-mortem* examination showed the heart to be feeble and flabby, and to have undergone fatty degeneration. "The right side of the heart was gorged with blood, the walls of the right ventricle very thin, and there were some nodules of cancer in the liver and lungs. The cause of death here seems evidently to have been that the emphysematous condition of the lungs prevented the passage of blood through the pulmonary vessels."

The Antiseptic Method in Surgery.—We direct attention to Dr. Weir's full and practical exposition of Lister's method, of which the second part appears in this issue of the JOURNAL. While the method is on trial before the profession, it is particularly important that it should be practiced thoroughly, if at all; and thoroughness means scrupulous attention to the minutest details. What those details are, it is the object of Dr. Weir's paper to teach.

An Equable Climate.—Dr. Jamieson describes the climate of Swatow, China, as one of the most delightful in the world. The maximum temperature in the six months ending July 30, 1877, was 88°, and in the nights of the hottest days the mercury fell to 79° and 81°. There is always a refreshing sea-breeze, and invalids find the weather at all seasons genial and invigorating.

Medical Education in Canada.—It is rumored that a new medical school is to be established in Montreal—a branch of Laval University, of Quebec. There are already four schools of medicine in the province of Quebec, and it is proposed to change the law regarding the length of the session, so as to oblige all schools to extend the course of instruction to a period of nine months.

Journalistic Notes.—In the December number of the *St. Louis Medical and Surgical Journal* Drs. William S. Edgar and D. V. Dean announce that their connection with that publication ceases. Dr. Thomas F. Rumbold has become editor and proprietor, with Dr. Hiram Christopher as associate editor.

Cinchona Culture in Jamaica.—Since the plantation of cinchona was begun in Jamaica, in 1860, every year has added largely to the industry, and there are now about eighty thousand trees in the government plantations in that island. Their estimated value is about five dollars each.

Report on Laryngology.—Owing to the large amount of surplus material in type we are obliged to omit Dr. Lefferts's Report on Laryngology, which is of unusual interest this time. It will certainly appear in the February number.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from November 14 *to December* 13, 1877.

Alexander, C. T., Major and Surgeon.—Assigned to duty as Post Surgeon at Fort Vancouver, W. T. S. O. 167, C. S., Department of the Columbia.

Clements, B. A., Major and Surgeon.—Assigned to duty at Camp Douglas, U. T. S. O. 131, Department of the Platte, November 14, 1877.

Storrow, S. A., Major and Surgeon.—Relieved from duty in Department of California, and to report in person to commanding general Department of the Platte for assignment. S. O. 232, A. G. O., November 13, 1877.

Wolverton, W. E., Major and Surgeon.—To accompany four companies of Seventh Cavalry, detached for field-duty. S. O. 169, Department of Dakota, December 5, 1877.

Notson, W. M., Major and Surgeon.—Assigned to duty at Fort McKinney, W. T. S. O. 135, Department of the Platte, November 24, 1877.

Gibson, J. R., Major and Surgeon.—Assigned to duty at Fort D. A. Russell, W. T. S. O. 132, Department of the Platte, November 16, 1877.

Walters, W. E., Captain and Assistant Surgeon.—To accompany Battallion Second Artillery from Carlisle Barracks, Pa., to Texas, and, upon arrival there, report to the commanding general of the department for assignment to duty. S. O. 246, A. G. O., December 5, 1877.

Koerper, E. A., Captain and Assistant Surgeon.—Assigned to duty at Fort Sanders, W. T. S. O. 133, Department of the Platte, November 17, 1877.

Kimball, J. P., Captain and Assistant Surgeon.—Relieved from duty in Department of the East, and assigned to duty at Fort Columbus, N. Y. H. S. O. 250, A. G. O., December 10, 1877.

Loring, L. Y., Captain and Assistant Surgeon.—Leave of absence extended five months. S. O. 243, C. S., A. G. O.

Patzki, J. H., Captain and Assistant Surgeon.—Granted leave of absence for six months, with permission to go beyond sea. S. O. 243, C. S., A. G. O.

Munn, C. E., Captain and Assistant Surgeon.—Assigned to duty at Sidney Barracks, Neb. S. O. 132, C. S., Department of the Platte.

Cowdrey, S. G., Captain and Assistant Surgeon.—Assigned to duty at Fort Cameron, U. T. S. O. 135, C. S., Department of the Platte.

Dickson, J. M., Captain and Assistant Surgeon.—Assigned to duty as Post Surgeon at Fort Klamath, Oregon. S. O. 171, Department of the Columbia, November 20, 1877.

Winne, C. K., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort McPherson, Neb. S. O. 132, C. S., Department of the Platte.

Mosely, E. B., First Lieutenant and Assistant Surgeon.—Assigned to duty at Camp Robinson, Neb. S. O. 132, C. S., Department of the Platte.

Finley, J. A., First Lieutenant and Assistant Surgeon.—Granted leave of absence for one month, with permission to apply for two months' extension. S. O. 221, Department of the Missouri, December 6, 1877.

Hall, W. R., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post Surgeon at Fort Stevens, Oregon. S. O. 168, Department of the Columbia, November 15, 1877.

Barnett, R., First Lieutenant and Assistant Surgeon.—Leave of absence extended one month. S. O. 275, Division of the Atlantic, December 11, 1877.

Turrill, H. S., First Lieutenant and Assistant Surgeon.—Assigned to temporary duty at these headquarters. S. O. 201, Department of Texas, November 30, 1877.

Newlands, W. L., First Lieutenant and Assistant Surgeon.—Relieved from duty at San Diego, Cal., and to report in person at these headquarters for assignment. S. O. 153, Division of the Pacific, and Department of California, December 8, 1877.

Corbusier, W. H., First Lieutenant and Assistant Surgeon.—Assigned to duty at Camp Sheridan, Neb. S. O. 133, C. S., Department of the Platte.

Obituary.

William Richard Basham, M. D., F. R. C. P., whose death occurred recently, was born in the year 1804, and had long occupied a prominent place in the profession to which he was devoted. In 1843 he was appointed physician to Westminster Hospital, and filled the duties of that office for a period of thirty-four years. He was an active member of the Hospital School, and held successively the chairs of Botany, Materia Medica, and Medicine, and was very popular as a teacher. He is best known in this country by his excellent works on renal diseases.

DR. WENZEL LINHART, Professor of Clinical Surgery in Würzburg, died October 22, 1877, aged fifty-six years. He had filled the chair of Surgery for more than twenty years.

MR. JAMES FLOWER, of London, distinguished for his skill in the preparation and articulation of skeletons, died October 30th, in the seventy-seventh year of his age. He numbered among his friends and patrons the most eminent anatomists of the day, and had work-rooms provided for him, with assistants, by the Royal College of Surgeons.

PROF. WUNDERLICH, who died September 25, 1877, was born in 1815, and received his diploma in 1837. He was appointed professor in his thirty-first year, and at the same time began his great work on Pathology and Therapeutics. We have not space to refer in detail to his many contributions to medical literature. His name will ever be associated with the grand advances in medicine effected by the use of the clinical thermometer in disease.

DR. EDWARD H. CLARKE, of Boston, died in that city November 30th, in his fifty-seventh year. Dr. Clarke graduated in the University of Pennsylvania in 1846. In 1855 he was appointed Professor of Materia Medica in the Harvard Medical School, and held that position seventeen years. He was eminently successful as a lecturer, and his written contributions to the literature of medicine were always read with interest. He was the author of the popular little work entitled "Sex in Education."

DR. W. HANDSEL GRIFFITHS, whose death occurred November 16th, at the age of thirty-one, had already accomplished a vast amount of professional work, and gave promise of a brilliant and honorable future. His contributions to medical literature, chiefly bearing on therapeutics, are of a high order of merit.

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Original Communications.

ART. I.—*Urethral Fever.*[1] By THOMAS R. BROWN, M. D., Professor of Clinical and Operative Surgery and Diseases of the Genito-Urinary Organs, College of Physicians and Surgeons, Baltimore, Md.

THE subject of this paper—"Urethral Fever"—has been selected chiefly because of its importance, which, to the man who is called upon to treat the diseases of the urethra often, as well as to the general practitioner, can scarcely be exaggerated. Besides this, is the disagreement as to what the term implies. As a celebrated genito-urinary surgeon has stated, "there is an obscurity and uncertainty which surrounds that condition known as urethral fever which has not yet been entirely cleared up." Many able and recent efforts to relieve this obscurity have been made, but their chief office seems rather to evidence the fertility and ingenuity of the authors than to carry conviction, or to serve any very useful purpose. They are eminently disquisitive, but do not seem to be very practical.

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[1] The subject of an address before the Medical and Surgical Society of Baltimore, Md., September 18, 1877.

It is highly probable that my comments to-night may have to be placed in the same category of comparatively useless material. It is of the first importance that some sort of an understanding or agreement should be had as to what we propose to discuss, and this we reach by a definition which should be kept well in hand.

Urethral fever, like any other fever, presumes elevated temperature, or pyrexia, which may be or not ushered in by a rigor, and which may be or not ushered out by a sweat. The more or less frequent occurrence of both rigors and sweats all through the paroxysm cannot, however, affect the accuracy of this definition. The prefix "urethral" is used to indicate that these phenomena succeed to the treatment—by far the most frequently surgical—of the urethra. This treatment may be either of the mildest or gravest description, such as the most smoothly or skillfully performed catheterism, or as the most formidable procedure for the cure of strictures, or for the removal of calculi. It is, moreover, a part of the syllogism, that no condition of health or temperament appears to exempt from, or predispose to, an attack. Neither in the frail nor in the robust, neither in the nervous nor in the stoical, does there seem to be any rule of occurrence.

It also is important to an intelligent view of the subject that the scope of the definition given should be limited. It is here that we can look for and find something to explain the obscurity. There should not be included under the head of "urethral fever" those morbid conditions which have no other claim for being so considered beyond that of coincidence. For example, it is obviously improper to class with this disease cases of extravasation of urine resulting from false passage, in which the symptoms are mostly those which are due to the toxic influence of decomposed urine circulating with the blood. I refer to that condition which we now describe as urinæmia in contrast with uræmia—a difference in terms which future observation may not permit. No matter what the cause, nor where this urinous leakage, the symptoms which it induces are the same.

I am not unmindful of a *fact* already briefly touched upon before this society, namely, the comparative harmlessness of extravasations of limpid, healthy urine, as demonstrated by actual experiment.

According to Van Buren, "Menzel first used acid urine, injecting it under the skin of several dogs, in quantities varying from a drachm to an ounce, without any bad effects." In another instance he dissected up the skin of a dog to the extent of four inches, and then introduced eight ounces of healthy human urine. This he repeated in four cases. In three of these the entire urine disappeared by absorption in four days, without any local injury, and in the last, as I read the experiment, there was absorption with local suppuration of a healthy character. The same result followed the insertion of the urine into the ischio-rectal fossa.

Years ago Simon (Van Buren), the distinguished German surgeon, held that extravasation of urine caused gangrene, by the rapid compression and distention of the tissues into which the effusion took place.

For the purpose of testing this, Menzel performed two experiments, which strike one as wellnigh conclusive. In the first, the quantity injected measured one-half of a pint, and in the other we are left to measure the quantity by the size of the tumor, which was that of a fœtal head. In both, absorption had taken place in three days, without any bad symptoms. To meet the objection that all these tests were applied to parts possessing a circulation and structure somewhat different from those parts into which the infiltrations naturally occur, he experimented upon the genitals. Here the results were the same, possibly with the exception of a difference in the rate of absorption. There was no toxæmia, nor any necrosis of tissues more than was caused by the formation of fistulæ, through which the unabsorbed urine passed in some instances. Some of the above experiments have been repeated, and the opinions of Menzel confirmed.

Dr. Partridge, at the instance of Prof. Van Buren, at the Charity Hospital, New York, made a number of hypodermic injections of healthy urine upon white and negro patients, who were left under the impression that they were receiving morphia. The quantity used was from one-half to one drachm, and in not one case did abscess appear, or any kindred lesion.

Velpeau has had a similar experience. The same results have followed the use of urine which was rich in urates, as obtained from patients suffering with acute inflammatory rheumatism. Urine alkalinized with soda or potash has proved innocuous; but, when its alkalinity depends upon the presence of ammonia, an altogether different result ensues. When it is injected under the skin, no matter where, almost invariably there follow abscesses; in some cases gangrene; in others, symptoms of blood-poisoning are present.

The outcome of such experiments is, that given healthy urine and healthy tissue—tissue not contused nor inflamed, therefore in a condition which will favor more or less rapid absorption—extravasations of urine are of no more serious import than are those of the blandest fluid. Hence it is that certain propositions are offered and almost generally accepted: "1. That normal urine does not possess septic qualities, and does not produce gangrene by its chemical properties; 2. That distention by infiltrated urine does not produce gangrene; 3. That gangrene, when it does occur, is caused by contusion of the tissues into which the effusion takes place by the accidental inoculation of septic matter," or the ammoniacal decomposition. This latter condition, as in part just stated, is favored by any interruption to absorption, or to the prompt and complete emptying of the bladder—in short, what favors accumulation favors decomposition. In the face of the evidence it is needless to extend the range of this question, and almost as superfluous it would appear to reinsist upon the holding of those morbid processes and symptoms which result from the absorption of urine, as apart from and extraneous to genuine *urethral fever:* the one quite definite in character, specific in origin, and causing such effects as can invariably be described as toxic; the other less definite, seemingly not dependent upon the distribution of any poison, and presenting all the vagaries of an un-understood nerve-disorder: the one infrequent, the other common, and to that extent at least the interdependence disestablished. I feel, therefore, that Gérard in his monogram, "Resorption urineuse et urémie dans les maladies des voies urinaires," is engaged in the discussion of a totally distinct subject from "urethral fever," and of one belonging to a class of diseases altogether unlike those published in the *Edinburgh Medical Journal*, under the caption of "Certain Rapidly-Fatal Cases of Urethral Fever after Catheterism," in which the symptoms have strong resemblance to traumatic, surgical, or irritative fever of a violent form. Under these circumstances, I say—urethral and urinary fever discussed and described as synonymous terms, diseases distinct considered as diseases with a common pathology—is there any wonder that "the uncertainty which surrounds that condition known as urethral fever has not yet been entirely cleared up?" With a view of stripping the nomenclature of all but its real belongings, of putting the disease where it should be properly placed—among the reflex disorders entirely—and of supporting this classification by strong proof, has this subject been chosen.

When I say reflex, I am aware of the more or less vague notion which we are compelled to hold concerning this "reflex system," if system it be. From the very nature of things vital it could scarcely be otherwise. It is one of those domains of physiology which, marked by obscurity, is very full of impenetrable mysteries, defies every attempt to reveal the essence of its existence, and is about as indeterminate and as little understood as irritation itself, which calls it into action. We must know it by its outward expressions, and not by what it is; but it is to-day a thing in the animal economy, to the existence of which almost as common and universal consent is given as is given to the function of vision, of taste, and of smell, despite its hidden nature. So far is this reflex principle settled, that men do not hesitate to formulate a chain of reasoning upon it. So far is it accepted as one of our cardinal truths, that we find Stuart Mill, in his "System of Logic," including it among "the miscellaneous examples of the explanation of the laws of Nature;" and, finally, so far is it accepted that experience has taught us that, when it is seriously interfered with, disease, and sometimes death, follows.

Might I be permitted to adduce here some examples of its importance, and instances, no doubt familiar, where both functional and structural troubles follow its perturbation, as, in part, given by Brown-Séquard:

The production of tears in one eye from irritation of the other, or of the mucous membrane of the nose.

The increased secretions of the eye or nose which follow the exposure of other parts of the body to "cold."

The occurrence of cataract in one eye after similar disease in the other, or after neuralgia of, or injury to, the frontal nerve.

The phenomena of sudden stoppage of the heart's action after receiving an injury or blow upon the abdomen, which is said to be preventable by neurotomy.

The curious duodenal ulcer which occasionally follows burns.

Those instances of distorted vision, said to have amounted, in some cases, to a complete loss, which have been caused by neuralgia, and cured by the extraction of a carious tooth.

The interesting example of paraplegia which Prof. Brown-Séquard himself cured by slitting a contracted prepuce, thereby remedying an offensive balanitis.[1] The case recorded by Sir Benjamin Brodie, in which the division of a close urethral stricture relieved a pain over one heel, which had lasted long and given great annoyance. Those cases of urethral spasm caused by fright, anxiety, shame, modesty, alcoholic excess, and a host of other illustrations which I might give. These are presented not as something at present unknown or new, but simply as reminders. They all agree in demonstrating: 1. That "the action which one part of the nervous system exerts over another part, and which we call reflex, is without any intermediate action on the brain, and, consequently, without consciousness." 2. That that condition of which we speak as irritation, either active or passive, is the force which produces this action.

With such facts as these before us, our case is clearer. If this same irritation, with its reflex action, can cause such disorders as excessive lachrymation, pain, spasm, ulceration, cataract, paralysis, loss of vision, etc., surely it can explain and cause the occurrence of attacks of urethral fever without invoking the aid of septic, urinous, or purulent resorption. It is here that the disease is to be studied, and its pathology, in part, to be rewritten. (In passing, I deem it proper to say that I have not overlooked the evidence which the above examples are supposed to offer of a system of trophic nerves.) This being offered as the pathology, I am the better prepared to present a hasty description of the clinical history. For very obvious reasons, if my argument be sound, there has been as little agreement upon this as upon the pathology. The arrangement of the varieties has been inexact, and therefore much of what is current must be rejected. The origin of all the forms of the disease being common—reflex—the subdivision of these forms will be such as is suggested by the intensity of the attacks, and is justified by actual bedside experience.

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[1] I do not overlook here Leyden's claim of continuous neuritis. It seems to be simply a claim for the present.

For the sake of convenience, I have divided these into three, it being expressly understood that this division cannot be always rigidly adhered to. The first and *most common* variety is where a fever, with a temperature generally not exceeding 101° Fahr., preceded by a chill, which may be mild or pronounced, is succeeded by nausea or vomiting, by sweating, sometimes profuse, and anorexia, with *malaise.* In many of these cases the expression of weariness during the attack is striking. As a rule, this form makes its appearance almost immediately after the operation, and will probably have left no trace by the next day, *provided the patient's urethra be not handled.* It may come on after the introduction of the catheter, or after a severe urethral operation. The following cases in point I submit from my own practice:

Mr. S., aged about fifty years, suffering from retention of urine, with dribbling—some pain with urination—consults me with an enlarged prostate. Inasmuch as most of the symptoms and distress in these cases are referable to the bladder, caused by a certain amount of residual urine, anodyne injections through the catheter were directed. After the most of the injections, not all, sometimes immediately, sometimes delayed for several hours, a group of symptoms, corresponding closely to those described above, set in. The next morning the patient would feel well. Indeed, so trifling was the trouble that the patient became himself indifferent to it, and at no time was the treatment suspended on account of it. The instrumentations were bloodless, but always more or less painful. For some reason or another there were times when the catheter could be passed without an attack. In this respect the case is typical. It is, moreover, important to note that neither quinine nor any other antiperiodic seemed to exercise much, if any, control over the attacks. The same may as well be said now in respect to the use of quinine previous to other and graver urethral operations. In nearly every one of a very large number of strictures treated by internal urethrotomy, I have taken all the precautions usually urged, including the giving of quinine and morphia in ten-grain and quarter-grain doses, respectively. The very frequent occurrence of urethral fevers after the operations, despite all of these precautions, has been to leave me decidedly in doubt as to whether this medicine affected the result or not. What it might have been without it I am not prepared to say. I refer only to its influence as a prophylactic.

As a second illustration of cases where this mild form of the disease succeeds to a severer operation than that of catheterism, I present the case of Mr. K. He consulted me, November, 1876, on account of a gleet which had continued through a number of years, notwithstanding the use of the customary remedies. Upon examination a stricture was found, between three and four inches from the meatus, which was too close to admit the urethrometer. After a dilatation, by means of the Thompson divulsor, sufficient to pass the urethrotome of Otis, and a slitting of the meatus, the stricture was freely divided, opening the urethra to the required calibre. Upon the withdrawal of the urethrotome, the blades of which had been previously closed, it was found to have engaged a slip from the urethra, which was detached completely—an accident possible under any circumstances, and avoidable by my present practice of never closing the instrument entirely when about to remove it. In this case there resulted nothing worse than what occurred in the preceding case. Almost immediately he had a sharp chill, followed by fever, sweat, loss of appetite for one or two meals succeeding the operation, and some languor, all of which had disappeared after a night's rest. His sudden loss of appetite was strikingly in contrast with his normal condition, which seemed to be one of wellnigh insatiable hunger. In neither of these cases was there suppression of the urine, which was voided with some smarting, but without any rigor. In the two patients the seats of disease, it may be remarked, were different. In the first, it was in the prostatic urethra, and all treatment was required to traverse the entire canal. In the second, the location of the disease was in the front or penile urethra. I mention these facts, because it is said that attacks of urethral fever occur in by far the larger number of cases in which the urethral curve has been treated. This I am prepared to verify. I am sure that there are some men with whom explorations of the spongy urethra are accompanied with no untoward symptoms, but whose membranous and prostatic urethra are very intolerant. I also know of another instance which I regard as very exceptional, that of a distinguished man in our profession, whose entire urethra is so very sensitive that on more than one occasion the most alarming symptoms have followed the bare introduction of a gum instrument. These, as I say, are unusual.

In the second variety of this disease the difference lies not only in the increased severity of the symptoms, but in the addition of icterus—certain mental disorders, which may amount to delirium—and in the delay in the arrival of the attack. In order that cases may be classed in this stage, I consider it necessary that the icterus and certain mental troubles be present. I can the best illustrate this variety, as before, by the narration of cases which have come under my own observation.

Mr. C., a resident of the Eastern Shore of Maryland, while in the city May 20, 1877, was compelled to consult his physician, Dr. Salzer, because of complete retention of the urine. Catheters, at first solid and then gum, first one size and then another, were introduced without reaching the bladder. When seen by me he was in great distress, which I could not relieve with the catheter. At 2 P. M., May 31st, aspiration[1] by the suprapubic puncture was performed, which gave immediate relief, and, as usual after such operations, there were no bad effects due to it. There was a history of an attack of gonorrhœa some years previous, which, from his accounts, was soon cured. Since that time the stream has steadily diminished in size. When seen by me at 7 P. M. on the same day, the bladder had refilled. Under the influence of ether, a stricture in the membranous urethra was stretched with the Thompson instrument, a double catheter passed and afterward secured. From Thursday to Saturday his urine was passed through this artificial channel without anything unusual happening. On the latter day internal urethrotomy, with Prof. Otis's urethrotome, was performed, cutting the urethra so as to easily admit a No. 32 F. About ten hours after the operation there was a severe chill, followed by a fever, with rapid and bounding pulse; temperature 104°; with quite constant vomiting. The next morning, while the febrile symptoms had somewhat abated, there were complete anorexia, icterus, and listlessness, with a tendency to drowsiness. The patient had passed a restless night. Notwithstanding that the patient was cinchonized from ten-grain doses of quinia, frequently repeated, the rigor returned in twenty-four hours with no recurrence. After the attack was completely under control, the patient went on to a rapid recovery, and in about one week after defervescence the passage of sounds begun. At no time was there any other change in the renal secretion than could be explained by the high temperature.

During the continuance of the fever, and as noted for one week after, no instrument passed the urethra, a rule which cannot be observed too closely. The decline of the fever, together with the other untoward symptoms, was marked in this, as in other similar cases, by the returning desire for food.

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[1] I have performed a similar aspiration of the bladder a sufficient number of times to convince me of its being a far safer and less painful method of relieving *retention* than is the usual mode of catheterization. The latter I regard, both in spasmodic and organic obstruction, as providing relief less prompt, and a risk of damaging the urethra, which ought to be avoided if possible. In the first there is no risk of urethral fever, at least.

It is not necessary to relate *in extenso* the second case of this class, which, upon the whole, resembled the one just cited—the only difference being in the severity of the operation. In this case a very interesting fact was observed—that the rigors and vomiting did not cease until a catheter had been fastened in, which became necessary because of spasm of the urethra preventing the patient's making water. With these, the high temperature and rapid pulse—104° and 120 respectively—which appeared in six hours, soon began to decline, an incident which apparently conflicts with the precaution urged in the case of Mr. C. Another point of interest is that of a peculiar rigor or trembling which would pass over the patient *while under the influence of ether* whenever an instrument was inserted. It may confine itself to certain muscles, like the pectoralis major, or may cover the whole body, carrying with it a suggestion of the patient's chilliness, as indicated by his reaching for extra covering. I have seen this often, and at first regarded it as ominous for evil, but a subsequent experience has dispelled any apprehensions that I might have had. Its only significance seems to be that it insures an earlier attack of urethral fever which may still be slight.

The third and last variety of this disease includes all those cases in which the reflex action is much more marked, and in addition come the symptoms of suppression of the urine, with signs of uræmic intoxication, together with a lower range of thermometry. The duration of the attack is, as a rule, short, terminating either with death or convalescence shortly after its inception. Death has been known to take place in the course of a few hours, and, on the other hand, recovery has been decided within a few days.

Like the other two varieties, a seizure of the above nature may follow the mildest and severest measures alike. It may besides occur in a man after the use of a catheter or sound to which he has been accustomed for years—like the case recorded by Sir Henry Thompson, where "a man with an old, tight stricture died on the third day after the passage of an instrument which had been used upon him very many times before."

Vomiting, severe chill, and suppression of urine came on early, and were followed by death in a few hours. In this case the kidneys were examined, and their condition described as "congested and soft." Then those cases already referred to in the *Edinburgh Journal*, and the others narrated by Velpeau, are suggestive examples of this, the gravest form of the malady, arising from a comparatively insignificant cause. I do not include in this list those cases in which death results from chronic lesions of the kidneys, which have been fanned into action, as it were, by the depressing effects of ever so slight a surgical procedure.

Dr. Gross, Jr., states his point correctly, that "the mortality after operations on the urethra is generally due to chronic Bright's disease or pyelitis." For this reason, prudent surgery suggests the precaution, which I have of late invariably observed, of examining the urine and the heart in every case before operating.

I am aware that there is said to be a variety of kidney-disease—the "contracted granular," as it is called by some—in which sometimes neither casts nor albumen can be found. This I believe to be an error, and that persistent effort will, as a rule, be rewarded in microscopic examinations by the detection of the former. Fortunately, however, we are not compelled to rely upon these for our diagnosis, and are permitted to look for other reminders of this serious disease in such cases. It is a safe practice to suspect renal lesions in every case of old stricture. Of course, I do not mean to be understood as saying that renal disease of a serious character exists in every case of urethral stricture. I simply urge the suspicion as a means of enforcing caution, and of the surgeon's providing himself with ample protection. While not prepared to assert the amount of danger of operating upon the urethra when both albumen and tube-casts are to be found, nor the relative merit or security of various procedures, such as lithotomy or lithotrity, or the cutting, stretching, or rupturing of strictures, under similar circumstances, I am prepared, from analogy, to assert that *there is danger*. Then come occasions, however, when some kind of manipulation is necessary, and when, no matter how grave the kidney-disease, there is a call for instant relief. For example, a patient presents himself for treatment, as happened to me only a few days ago, with Bright's disease, and, at the same time, a very close stricture in the penile urethra, which causes at times retention. The diagnosis of Bright's disease rested upon the detection of albumen and suspicious casts in the urine. In a case like this I at first divulsed with the Thompson urethrotome, and afterward divided with that of Otis. In both cases no chill or fever occurred. I am not disposed, though, to suggest such a course in all cases, but would think the process of gradual dilatation is, perhaps, the safer. Upon this subject a great deal more light is needed before a decision can be reached. We must see many cases, and have tried all the methods, lest we make unfair distinctions and draw unsound conclusions.

As to the prognosis in this disease, it is very favorable. A disease which I once regarded with much dread I now consider as comparatively simple. I feel that I am warranted in here stating that I have seen nearly one hundred cases, and it is upon these I found my opinion. When death occurs after Bright's disease, septicæmia, or pyæmia, when an operation upon the urethra has been recently performed, the complaint must be lodged where it properly belongs. As, after every or any other surgical operation, death may be caused by either of these conditions, so may it after the operations upon the genito-urinary tract.

Concerning the treatment I can be brief. The indications are to keep down the temperature with large doses of quinine and morphia, plenty of ice, and free sponging with simple or acidulated water. In addition to these, free purgation when indicated, and sustained vicarious action of the skin and bowels, are very serviceable. Whenever disposed, let the patient eat, but not otherwise.

Such is a brief *résumé* of some of my views upon the subject of the part reflex irritation plays in urethral fever, and I hope at some future time to inquire into the possible relationship which may be found to exist between this irritation (irritative fever) and the pyæmia so called. It will be curious to see how long the old orthodoxies of metastasis and transported cells will be able to stand—how far the theories of blood-poisoning, uræmia, septicæmia, pyæmia, and the like, may have to give place to something less vague. Will they be compelled to surrender to the more modern doctrine of nerve-energy or nerve-irritation? At present, *a priori* arguments may be against it, but it must be weighed in the balance of experiment. It is here that we can use as *à propos* the old saying, "There is nothing true that is not possibly false, and there is nothing too absurd to be true."

ART. II.—*Cardiographic and Sphygmographic*[1] *Studies.* By A. T. KEYT, M. D., Cincinnati, Ohio.

II. THE PHYSIOLOGY OF THE PULSATIONS.—The field of my present investigation will be conceded as an open one. The fruits hitherto gathered therefrom cannot be justly esteemed of such perfection and significance as to bar the gate against further experimentation. The application of improved implements and methods may result in new and richer productions.

Nor will it be questioned that successful investigation will afford a fund of interesting and valuable facts—facts that will fill a void in the physiology of the pulsations, and supply the needed standards by which abnormal departures may be detected and appreciated.

For the experiments, the instrument was kept adjusted, so that the basal and discal membranes of one side were uniform in tension and action with those of the other.

The tracings from which our demonstrations and lessons are drawn, are presented in two series: one from a man, in health, aged 50 years; the other from a man, in health, aged 25 years. The radial pulse of the older subject, designated by *K*, is usually 72 to 76 per minute, but runs faster under experimentation; it is regular, ample, and resisting to the fingers. In the tube, the highest undulations are displayed at 16° of pressure, the same rising and falling one and a half to two degrees; decline gradual, and marked by the lesser oscillations. The form of the tracings, as seen, confirms these indications, and demonstrates the pulse to be *above* the average in tension and resistance to pressure.

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[1] The reader who would well understand the present paper must have read my last (NEW YORK MEDICAL JOURNAL, July, 1877), where the apparatus and method by which the results therein and herein were obtained, are described.

The radial pulse of the younger subject, designated by *L*, runs from 62 to 72 per minute; it is ample, bounding, dicrotous, and compressible to the fingers. In the tube, the undulations are highest at 12° of pressure, rising and falling two to two and a half degrees. The form of the tracings, as seen, confirms these indications, and demonstrates the pulse to be *below* the average in tension and resistance to pressure.

The advantage, thus, of two sets of tracings, which, while proving each other, and showing the relations sought to be determined, serve to demonstrate very closely the physiological chronometric range and average, in the movements of the adult heart and arteries, becomes forcibly manifest.

I will first go through with the demonstrations dealing with the data as if they were mathematical certainties, and afterward will offer substantiations, and endeavor to show wherein and to what extent they are worthy of acceptation.

DEMONSTRATIONS.

Problem 1.—To determine the average time-difference between the carotid and dorsalis pedis, or posterior tibial pulse.

Solution by Plates No. 11 of the *K* series and No. 17 of the *L* series. *K*'s time, $0''.125=\frac{1}{8}$, and *L*'s time, $0''.166+=\frac{1}{6}$ of a second. Mean result, $0''.1458=\frac{1}{6.86}$ of a second.

Problem 2.—To determine the average time-difference between the carotid and femoral pulse.

Solution by No. 12 of the *K* and No. 18 of the *L* series. *K*'s time, $0''.05=\frac{1}{20}$, and *L*'s time, $0''.0909=\frac{1}{11}$ of a second. Mean result, $0''.0704=\frac{1}{14.2}$ of a second.

Problem 3.—To determine the average time-difference between the femoral and dorsalis pedis, or posterior tibial pulse.

Solution by No. 13 of the *K* and No. 19 of the *L* series. *K*'s time, $0''.075=\frac{1}{13.33}$, and *L*'s time, $0''.0714=\frac{1}{14}$ of a second. Mean result, $0''.0732=\frac{1}{13.66}$ of a second.

Problem 4.—To determine the average time-difference between the carotid and radial pulse.

Solution by No. 14 of the *K* and No. 20 of the *L* series. *K*'s time, $0''.0714+=\frac{1}{14}$, and *L*'s time, $0''.088+=\frac{1}{11.35}$ of a second. Mean result, $0''.0797=\frac{1}{12.54}$ of a second.

Problem 5.—To determine the average time-difference between the radial and dorsalis pedis, or posterior tibial pulse.

Solution by deducting *K*'s carotid-radial time, No. 14, from his carotid-dorsal, No. 11, which gives $0''.0536=\frac{1}{18.65}$ of a second, and by No. 21 of the *L* series, which gives $0''.0625=\frac{1}{16}$ of a second. Mean result, $0''.058=\frac{1}{17.24}$ of a second.

Problem 6.—To determine the time-relation between the femoral and radial pulse.

Solution by No. 15 of the *K* series and No. 22 of the *L* series. In *K* the femoral precedes the radial by about $0''.02=\frac{1}{50}$ of a second, while in *L* the radial precedes the femoral by a time too short for anything like accurate measurement. Mean result, antecedence of the radial pulse probably not longer than $0''.01=\frac{1}{100}$ of a second.

Problem 7.—To determine the average time-difference between the systole of the ventricle and the carotid pulse.

Solution by No. 16 of the *K* and No. 23 of the *L* series. *K*'s time, $0''.077=\frac{1}{13}$ of a second; *L*'s time, $0''.100=\frac{1}{10}$ of a second. Mean result, $0''.0884+=\frac{1}{11.33}$ of a second.

From the above facts are deduced the following:

Corollary 1.—In different individuals the time-difference of the pulse between the same designated arterial points is subject to marked inequality.

Corollary 2.—In such comparison the asynchronism between the carotid and femoral pulse shows the greatest diversity.

Also, from the above, and other proper data of the plates, is deduced:

Corollary 3.—In the same individual the time-difference of the pulse between the same designated arterial points, as noted at different times, and even in successive pulsations, is liable to a limited variation.

The next problems concern the rate of transmission of the pulse-wave as a whole along the arterial lines. The solutions, in addition to the data already presented, call for those expressing the arterial distances between the points under observation. The latter have been approximately ascertained by careful external measurements, and will be stated in order as required.

Problem 8.—To determine the average *mean* velocity of the pulse-wave along the arterial tree from the trunk near the root to a branch in the foot.

Solution.—*K* measures from the third cartilage point, opposite the aortic orifice, to the carotid and dorsal points respectively, 7 and 53 inches. Six inches is added to the latter distance, to cover the aortic arch. Evidently, then, the distance represented by the difference between the carotid and dorsalis pedis pulse is : 53+6−7=52 inches.

Carotid-dorsal time-difference, 0″.125, is to distance traversed by pulse-wave (52 inches) as 1″. is to the velocity of pulse-wave per second, viz., 416 inches. The same operation applied to *L* yields the formula : 0″.166+ : 51 inches :: 1″. is to the required answer, viz., 306+ inches per second. Mean velocity, 361 inches per second.

Problem 9.—To determine the average velocity of the pulse-wave along the aorta and iliacs to the femoral at the groin.

Solution.—*K*'s carotid-femoral difference or transit time (No. 12), 0″.05; distance traversed, 17 inches. Result, 340 inches per second. *L*'s carotid-femoral transit-time (No. 18), 0″.909; distance traversed, 18 inches. Result, 198 inches per second. Mean velocity, 269 inches per second.

Problem 10.—To determine the average velocity of the pulse-wave along the arteries of the inferior extremity from the femoral at the groin to the dorsal of the foot.

Solution.—*K*'s femoral-dorsal transit-time (No. 13), 0″.075; distance traversed, 35 inches. Result, 466 inches per second. *L*'s femoral post-tibial transit-time (No. 19), 0″.0714; distance traversed, 33 inches. Result, 462 inches per second. Mean velocity, 464 inches per second.

Problem 11.—To determine the average velocity of the pulse-wave along the arteries of the upper extremity from the subclavian, at a point seven inches from the heart, to the radial at the wrist.

Solution.—*K's* carotid-radial transit-time (No. 14), 0″.0714; distance traversed, 23 inches. Result, 322 inches per second. *L's* carotid-radial transit-time (No. 20), 0″.088+; distance traversed, 23 inches. Result, 258 inches per second. Mean velocity, 290 inches per second.

Data are now at command for solution of

Problem 12.—To determine the average duration of the pre-sphygmic portion of ventricular systole; or, in other words, the interval between the beginning of ventricular contraction and that of aortic expansion.

Solution by Calculation.—The velocity of the pulse-wave between the ventricle and carotid must be essentially the same as that along the aorta and iliacs. The measurement between the ventricle and carotid point is seven inches. Hence, by these data, *K's* transit-time over the distance between the heart and carotid point is 0″.0206,[1] which, deducted from *K's* time-difference between these points, viz., 0″.077, gives the result, 0″.0564. The same operation carried through *L* gives the result, 0″.647. Therefore the mean result is 0″.605$=\frac{1}{16.52}$ of a second.

Solution by direct Demonstration.—In *K*, No. 16, line 2 cuts the cardiac trace at the point which marks the end of systole, and line 2′ cuts the carotid trace at the apex of the second wave, which also answers in the pulse to the cessation of cardiac systole. *B* and *C*, as usual, mark respectively the beginning of ventricular contraction and that of arterial expansion. Then the space *B*2 represents the whole of ventricular systole, and *C*2′ the whole of pulse-expansion due directly to ventricular systole, and the difference between these distances represents the duration of the pre-sphygmic portion of ventricular systole. *C*2′ placed within *B*2 spans from 2 to the dotted line. Hence, the space between *B* and the dotted line is the interval sought. This measures by the chronogram 0″.0564$=\frac{1}{17.73}$ of a second. The same process applied to *L*, No. 23, yields the result, 0″.0647$=\frac{1}{15.45}$ of a second. Mean result, 0″.0605$=\frac{1}{16.53}$ of a second.

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[1] The critical reader will notice a discrepancy between the transit-time of the ventricular-carotid pulsation here stated, and that announced ($\frac{1}{60}$ second) in my former article. The difference between $\frac{1}{48}$ and $\frac{1}{60}$ of a second is not great, but the present estimate is derived from more precise data, and is unquestionably a nearer approximation than the other. All discrepancies, apparent and real, between the estimates in that paper and this, could be explained, were it worth the while to take the space, but in all instances in favor of the nearer accuracy of the last.

The subjoined table affords a compact record of the leading facts so far demonstrated:

POINTS UNDER EXPERIMENT.	Arterial Distances traversed by the Pulse-Wave.	Mean Time-differences of Pulse-Wave between the Points designated.	Mean Velocity per Second of Pulse-Wave along the Arteries included.
	Inches.	Seconds	Inches.
Carotid and dorsalis pedis	52	0″.1458 $= \frac{1}{6.86}$	361
Carotid and femoral	17 and 18	0″.0704 $= \frac{1}{14.2}$	269
Femoral and dorsalis pedis.....	35	0″.0782 $= \frac{1}{12.79}$	464
Carotid and radial............	23	0″.0797 $= \frac{1}{12.54}$	290
Heart and carotid.............	7	Mean time-difference between pulsations, 0″.884 $= \frac{1}{11.31}$ sec. Mean transit-time from aortic orifice to carotid point, 0″.0279 $= \frac{1}{35.84}$ sec. Mean ventricular pre-sphygmic time, 0″.0605 $= \frac{1}{16.53}$ sec.	

From the foregoing demonstrations and data of the cuts, the following corollaries are deduced:

1. The rate of transmission of the pulse-wave along different portions of the arterial tree is not uniform, but considerably diverse.

2. The rate is minimum for the aorta, maximum for the

arteries of the lower extremity, and intermediate for those of the upper extremity.

3. Along the same arterial line the rate increases as the distance from the heart increases.

4. In the same healthy individual, in the same arteries, the rate is subject to a limited variation.

5. In different healthy individuals, in the same arteries, the rate is subject to marked diversity, of which the widest is in the aorta.

6. Both in the same and different healthy individuals, the pre-sphygmic portion of the systole of the ventricle is liable to considerable variation.

EXPLANATION OF PLATES.

Tracings are in pairs, one above the other, taken at the same time, on the same glass. On most of the plates the same arteries are traced by reversal of the bases, for the purpose of proof. Near the lower margin of each plate is the time-line, showing fifths of a second between the points. The arteries will be recognized by the abbreviation near the trace. *A*, *A′*, are the curved lines made by the levers before the start of the carriage; and *a* is made in like manner by the time-tracer, and marks the beginning of the chronogram. *B* is a line drawn, parallel with *A*, through the basal point of the proximal trace; and *C* is a line drawn, parallel with *A′*, through the basal point of the distal trace. The space *BC* is the difference between the proximal and distal pulsation, and figures express the value of *BC* in fractions of a second, as carefully computed from the chronogram.

1, 2, 3, are lines parallel with *A* and *B*, cutting the apices of the first and second waves, and the aortic notch of the third or aortic wave, respectively; and 1′, 2′, 3′, are lines parallel with *A′* and *C*, cutting the distal pulsation at the same respective distances from *C* as 1, 2, 3, are from *B*.

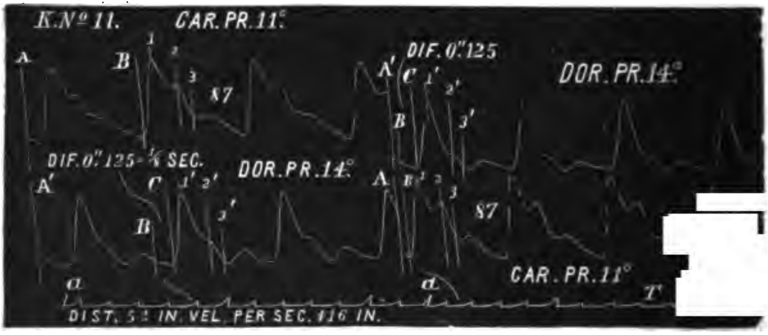
The figures within a pulsation indicate its frequency per minute.

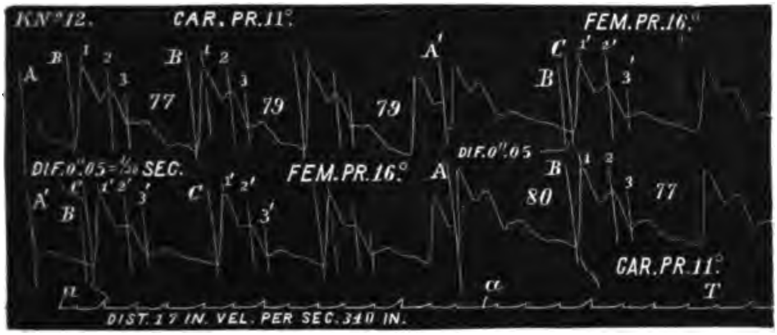
On Nos. 16 and 23 the dotted line between *B* and *C* divides *B C* into pre-sphygmic and transit-time. *PR* is for pressure, and the following figure indicates the number of degrees, by the tube, at which the traces were taken.

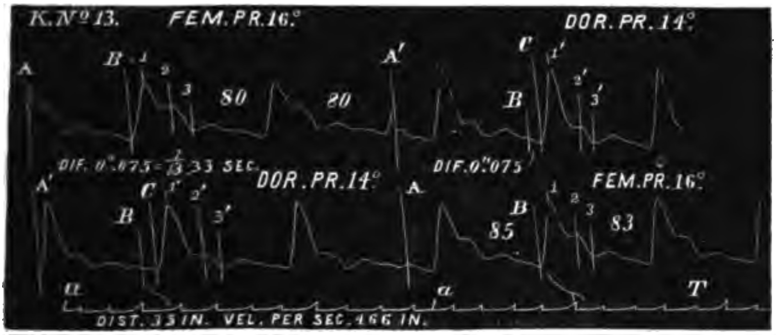
Int., interval; dist., distance; vel., velocity. The other abbreviations cannot be mistaken.

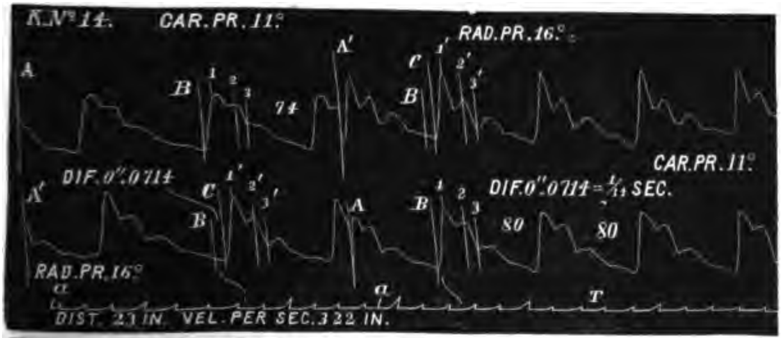
The fine line leading from *B C* to the time-line shows the proper space from which the difference was estimated.

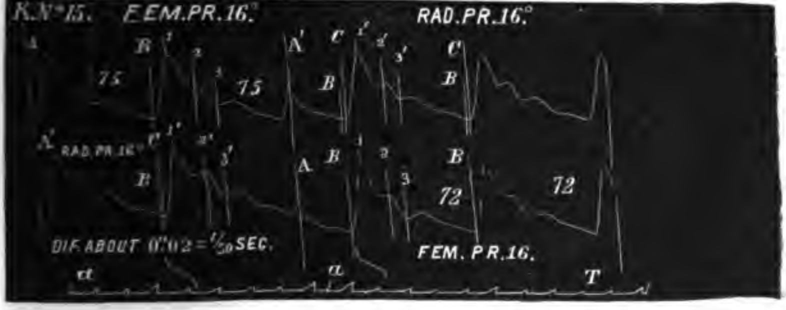
THE *K* SERIES, FROM A MAN, IN HEALTH, AGED 50 YEARS.

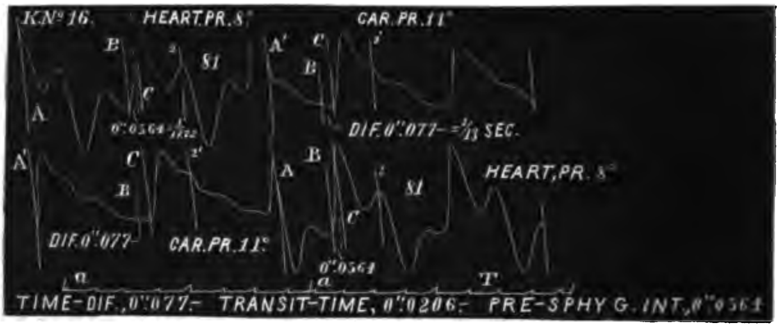



K.N°12.
CAR. PR.11°.
FEM.PR.16°.
A B 1 2 3 77
B 1 2 3 79
79
A'
C 1' 2' 3'
B
DIF.0".05=1/20 SEC.
A' C 1' 2' 3' B
C 1' 2' 3'
FEM.PR.16°.
DIF.0".05
A B 1 2 3 80 77
CAR.PR.11°.
a
a
T
DIST. 17 IN. VEL. PER SEC. 340 IN.

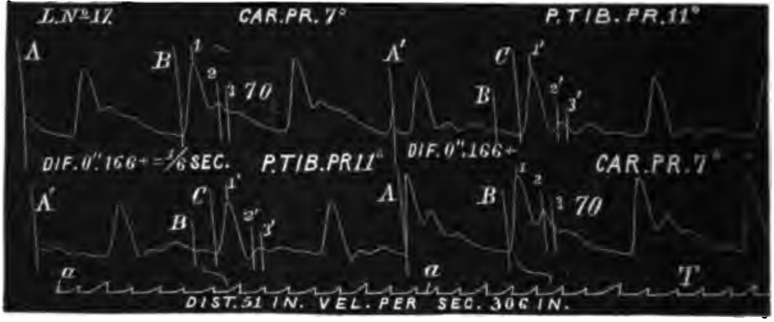

K.N°13.
FEM.PR.16°.
DOR. PR.14°.
A B 1 2 3 80 80
A'
C 1' 2' 3'
B
DIF. 0".075=1/13.33 SEC.
DOR.PR.14°.
A' C 1' 2' B 3'
DIF.0".075
A
FEM.PR.16°.
B 1 2 3 85 83
a
a
T
DIST. 35 IN. VEL. PER SEC. 466 IN.

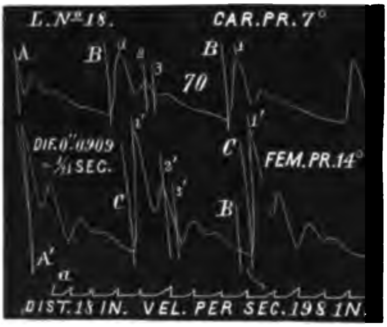

K.N°14.
CAR.PR.11°.
RAD.PR.16°.
A B 1 2 3 74
A'
C 1' 2' 3'
B
CAR.PR.11°.
DIF.0".0714
A' C 1' 2' 3' B
A B 1 2 3
DIF.0".0714=1/14 SEC.
80 80
RAD.PR.16°.
a
a
T
DIST. 23 IN. VEL. PER SEC. 322 IN.

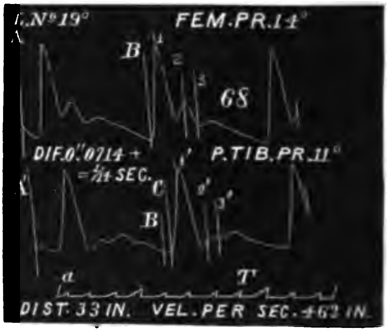

K.N°15.
FEM.PR.16°.
RAD.PR.16°.
A B 1 2 3 75 75
A' C 1' 2' 3' B
C B
A' RAD.PR.16° C 1' 2' 3' B
A B 1 2 3 72
B 72
DIF. ABOUT 0".02=1/50 SEC.
FEM. PR.16.
a
a
T

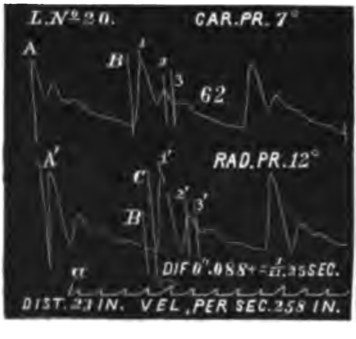


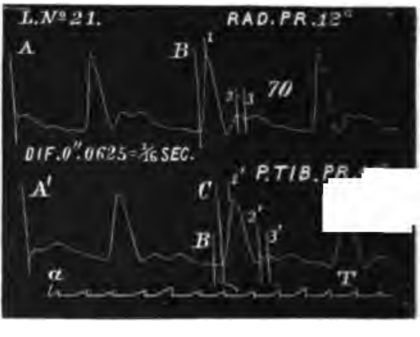
THE *L* SERIES, FROM A MAN, IN HEALTH, AGED 25 YEARS.

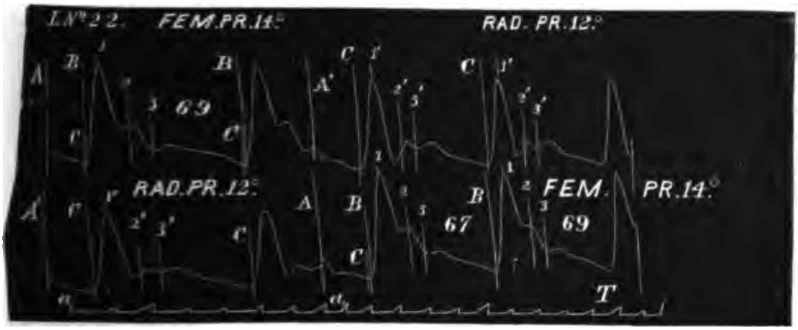


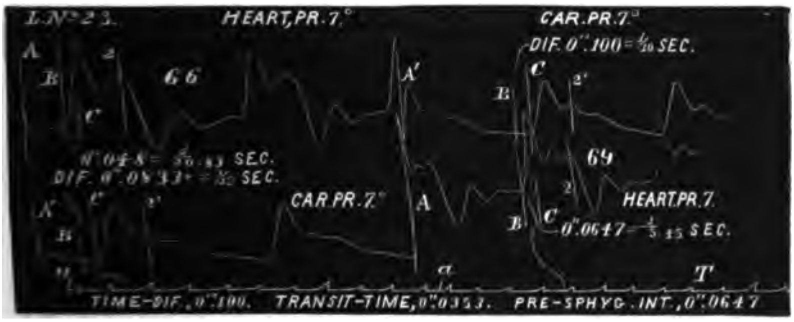












Problem 13.—To determine, in the arteries under observation, the *rule* of the time-relation of the three principal secondary waves to the beginning of the pulsation of which they are parts.

While fully appreciating the difficulty of an exact rendering of the specific facts embraced in the *chronometry* of the secondary waves, the data in hand are offered as competent for the solution of the problem as stated above.

Solution, by a critical examination of the plates. The position of the lines 1′, 2′, 3′ on the distal trace, as to the summits of the first and second waves, and the aortic notch or beginning of the third wave respectively, shows the relation sought; inasmuch as these numbered lines are placed at the same respective distances from *C* as 1, 2, 3 on the proximal trace, and exactly cutting the secondary waves, are placed from *B*.

In the reading it is important to consider that the aortic is truly a double wave, and that the first indentation is properly the aortic notch. The double form is shown distinctly in the carotid, and is more or less indicated in the femoral traces. In the radial, dorsal, and posterior tibial, it scarcely appears.

Examination of the pairs of the *K* series, all shown by reversal, yields the following results:

1. The first and second waves of all the pairs attain their summits as early in the distal as in the proximal arteries—in the dorsalis pedis as in the carotid pulse.

2. The beginning of the third or aortic wave is slightly but clearly delayed in the dorsal as compared with the femoral and carotid pulse, while delay is scarcely shown in the femoral and radial as compared with the carotid pulse, and in the femoral radial pair the correspondence is complete.

Examination of the pairs of the *L* series (part shown by reversal) yields the following results:

1. The first wave is shown to attain its summit at the same time in the posterior tibial and carotid pulse (shown by reversal); in the femoral and carotid; in the radial and carotid; in the femoral and radial; while the summit is shown very slightly delayed in the posterior tibial as compared both with the femoral and radial.

2. The second wave is shown slightly antecedent in the femoral and subsequent in the radial, as compared with the carotid; delayed in the radial as compared with the femoral, and in the posterior tibial as compared with the femoral, radial, and carotid.

3. The beginning of the aortic wave is shown delayed in the distal pulse of all the pairs except the femoral-radial, in which it marks corresponding time.

Allowing for fallacies, and giving the above results a judicious interpretation, the premises will justify at least the following statement:

Rule 1.—The interval between the beginning of the pulse and its acme of expansion is the same in all parts of the arterial system.

Rule 2.—In certain conditions of the vessels and circulation the second wave keeps close time with the first in the onward flight, while in certain other conditions of the same the second falls notably behind the first in the progress from the heart.

Rule 3.—The aortic wave rises later in the distal than in the proximal pulses, and latest in the pulse most distant from the heart.

I proceed now to elucidate the significant inquiry, Are the foregoing data reliable? With certain reservations and restrictions, I claim that they are. The time-differences shown on the engravings are not the certain expressions of the exact asynchronisms between the pulsations represented, but they are, indeed, extremely fine approximations thereto. The basal point of ascent from which the measurements were made is notably the most stable of any in a tracing. In the mechanism the lever has descended and become poised for the moment before it mounts up again on the current wave. Thus the basal point is wholly removed from the disturbing influence of inertia of the lever. The other chief obstacle to a good tracing—namely, undue friction of the writing-point against the slide—is so palpable when present, and so easily obviated, that this cause of displacement of the basal point need never be operative. Indeed, so little liable is this point to fallacious deviation, that its indications may be relied upon even in tracings not altogether faultless in form. In the tracings given, the basal point of each and every pulsation is unquestionably in its true position. The instrument, properly charged and adjusted, and used with skill and care, is simply incapable of erroneous registry of this point. Whence come, then, the errors admitted as liable in the representations of the time-differences? The automatic registry is perfect, but the estimation thereof is imperfect.

The measurements are subject to fallacy from two sources: one, the difficulty of exactly locating the basal point, more or less obscured as it is in a curve; the other, an unnoted change in the speed of the carriage taking place within the limits of the time-points from which the measurements are made. The first source, it would seem, is unavoidable, and must be continuous; the second may be obviated when we attain to a mechanism that will move the slide with a certain unvarying speed. As no error attaches to the time-line, and the time-differences were carefully computed from it, deviations on account of unequal movement of the slide are at a minimum; and, indeed, aberrations from the causes named, even when acting in conjunction, are too inconsiderable to affect appreciably the value of the data determined.

The method by reversal of the bases obviously affords positive proof that the instrument was delicate and true, and gave the correct differences between the points to which the bases were applied.

Each pair of tracings presented was selected from many taken from the points designated, the asynchronisms in all having been measured and noted. The small range of variation in the measurements was to an extent equalized in the representation by choosing and marking a pulsation whose time-difference, as ascertained, was a near average of the observations. And yet these individual variations, while real, come in to mar the harmony of results, and prevent agreement in figures it would be satisfactory to have. Thus, the carotid post-tibial time should be equal to the sum of the carotid-femoral and the femoral post-tibial time, and either of these latter subtracted from the first should leave exactly the other. This agreement does not quite obtain in the *L* series. However, these discrepancies are small, and not serious.

In the tracings by reversal, pulsations were selected—one pair from each order—whose time-differences were equal.

In *L*'s cardiac-carotid tracing, No. 23, two time-differences of unequal value are marked—one on each side of the reversal lines. This was done to show the variation which may be noted in the time-difference between the heart and carotid in so short an interval. The estimates were made from the longer time, because this is *L*'s more usual time between these points.

The measurements of the arterial lengths included between the arterial points are approximations, but must be so near the true distances that but very small error can arise from this source in the calculation of wave-velocities.

In regard to the data for determining the relative chronometry of the secondary waves, it is proper to premise that such data can only have value in the best-formed tracings. Between the basal point and aortic notch, friction and inertia exert their disturbing sway, and in consequence the apices of the first and second waves are frequently traced out of their true position. The aortic notch is less influenced than the preceding waves by extraneous causes, and, next to the basal point, it is the most stable. The summit of the aortic wave is uncertain.

The tracings given are free from distorting effects of friction, for all were taken with as light pressure of the tracer as possible to secure delineation. Inertia of the lever does not seem to have had appreciable effect upon the *K* series, and the reversal showing the points of the waves in the same relative position proves the perfection of this record.

In a part of the *L* series effects of inertia seem visible. This would be expected in a pulse of low tension and high amplitude. Supposed fallacies are: *a*, the postponement of the apex of the first wave of the femoral and of the radial, compared each with the posterior tibial; *b*, *antecedence* of the second wave of the femoral compared with the carotid; *c*, excessive postponement of the second wave of the radial compared with the femoral; and *d*, excessive postponement of the second wave of the posterior tibial compared with the radial and femoral. In other respects, the *L* series would appear to be a true exposition of the relations of the secondary waves.

The relations shown of the femoral and radial pulse to each other, in the two series respectively, afford striking confirmation of the fidelity of the entire exposition. The femoral pulse in the *K* series, notably *preceding* the radial, is what must be if the expressed time-differences and velocities between the carotid-femoral and carotid-radial are correct; while the femoral pulse in the L series, slightly *succeeding or about equaling in time* the radial, is what must be if the expressed time-differences and velocities between the carotid-femoral and carotid-radial are correct. The contrast has been noted in at least a score of tracings from these subjects, and in no instance has it failed to be observed.

In the preparation of the glasses, the added lines were drawn with exceeding care, and the proper figures and letters written in their places. The transfer to wood was effected without change, by photography—the glasses used as negatives in direct contact with the sensitized blocks; skillful cutting completed the work. The reproduction appears perfect.

Although sensible that I cannot free myself from the imputation of being an interested witness, yet my opportunities for testing the method and results have been so abundant and superior, and, if allowed to say it, my scrutiny so close and exactions so rigid, that I venture to add the testimony of my unreserved confidence in the fidelity of the data of the plates. More extended observations among persons of different ages, and conditions of the vessels and circulation, in health, may change somewhat the averages from the figures stated; but these latter, computed as they are from the data of a young man with a yielding, low-tension pulse, and from those of a mature man with a resisting, high-tension pulse, may be accepted as expressing very nearly the true averages. The velocities of the pulse-wave are evidently less certain and exact than the time-differences, computed as they are from two approximations; yet these cannot be seriously erroneous.

ART. III.—*The Treatment of Paralysis in Pott's Disease of the Spine.*

By CHARLES T. POORE, M. D., Surgeon to St. Mary's Free Hospital for Children, and to Charity Hospital, New York.

THE occurrence of paralysis in the course of disease of the vertebræ is always a source of anxiety both to the patient and the physician; and although the prognosis in the majority of cases in regard to ultimate recovery of motion is, as a rule, good, yet it generally leaves the affected muscles atrophied and the limb dwarfed. The time necessary for spontaneous recovery may extend over many months, if not years. The question naturally arises, Can this time be shortened, and can we save our patients from the many troubles attendant on long disease of the muscles of the paralyzed limbs, as well as the annoyance arising from loss of control over the passage of urine and fæces, which is always an accompaniment of paralysis of any marked degree? It is held by some that paralysis in Pott's disease is due to *direct bony* pressure, dependant on the curvature, or displacement of bone, and that, in order to cure the paralysis, the sole treatment should consist in efficient support. In 172 fatal cases of disease of the vertebræ in which *post-mortem* examinations were held, 84 were complicated with paralysis, and 88 not. Of the former class, the direct cause of the pressure is given in 66 cases, and in 18 the cord does not appear to have been examined. Of these 66 cases, the cord was compressed in 53 cases by thickened meninges (pachymeningitis), in 4 by dislocation, and in 1 by enlargement of the odontoid process; in 1 by the acute angle in a curve of rapid formation; in 1 by dead bone; in 1 by the stretching of the cord over a blunt angle; in 1 by the giving way of diseased bone, completely compressing the cord; in 3 by the bursting of an abscess into the spinal canal. Direct bony pressure is rarely met with at *post-mortem* examinations. The fact that profound paralysis may exist without any deformity, and, on the other hand, that there may be any degree of curvature without paralysis, proves that there is no connection between the two in the vast majority of cases. How, then, is the cord compressed?

The following abstract of a *post-mortem* examination of a patient under my care will help to furnish an answer to the inquiry: The patient was a child 2½ years old, who died from meningitis extending from the point of disease, the seventh cervical and first and second dorsal, up to the brain. The disk between the seventh cervical and first dorsal had disappeared, and the articular surfaces of the bodies of the corresponding vertebræ were carious; the disk between the first and second dorsal was also diseased. On removing the spinous processes and exposing the dura mater, there was found a ring of *caseous matter* completely surrounding it, at a point corresponding to the diseased disks; it was thickened, and pressed upon the cord; the arachnoid was vascular; there was *no* diminution in the calibre of the spinal canal; the *posterior common ligament* was *destroyed* at this point, thus permitting the pus and broken-down materials from the diseased disks and bone to come into contact with the *external membrane* of the cord.

There was but a slight curve. During life there had been some loss of motion in the lower extremities. Michaud, in his paper, "Sur la meningite et la myelite dans le mal vertebral," records a case of Pott's disease with marked curvature in the dorsal region, and complete loss of motion and sensation in the lower limbs. The calibre of the *spinal canal* at the point of curvature was not less than *normal;* the *posterior common ligament* was *destroyed*, and the *cord compressed* by *thickened dura mater*—it was the seat of profound changes. These changes in the cord have been studied by Michaud, Charcot, and others, and consist of a chronic myelitis at the point of pressure, causing an increase of the fibrous elements of the cord, with an ascending sclerosis in the posterior and a descending sclerosis in the antero-lateral columns. The nerve-tubes are compressed and twisted by this new formation; some of them disappear, while many are atrophied, and otherwise changed. The cord itself is sometimes diminished in size, and hardened by this increase in its fibrous elements. Pressure upon the cord always causes it to become inflamed; to this there is no exception. The mechanism, so to speak, of paralysis in the vast majority of cases occurring in the course of Pott's disease, is *destruction* of the *posterior common ligament*, *contact* of *pus* with the *dura mater*, *inflammation* and *thickening* of this *membrane* (pachymeningitis), *pressure* on and *chronic inflammation* of the *cord.* The symptoms accompanying this process are: 1. Those of simple pressure on the cord, paralysis with flaccidity of the muscles of the paralyzed limbs, and changes in the circulation and temperature of the limb. 2. Those of inflammation, an increase of reflex action in the muscles below the point of disease, if the pressure is not at the lumbar enlargement, and troubles connected with the evacuation of the bladder and rectum. We may have paralysis of motion alone, or of motion and sensation, or the latter may be only slightly impaired. If the lumbar enlargement is involved in these changes, there will be no reflex action in the lower extremities, and there will be paralysis of the sphincter of the bladder and rectum. When the point of pressure is higher, and when there is loss of motion and sensation, the bladder empties itself whenever it gets distended to a certain extent, entirely without the knowledge of the patient. There is no paralysis either of its muscular coat or of the sphincter. On the other hand, when there is loss of motion only, the patient is aware of the desire to evacuate the bladder, but has no control over it, and, before his wants can be attended to, it contracts, and evacuates its contents. There may be an inability to walk, from pain or weakness of the back. This condition should not be mistaken for paralysis.

It is this class of cases that we so often hear of as being cured of a paralysis (?) of long standing immediately upon the application of efficient support, and they are mentioned as examples of the superiority of the mode of treatment adopted (when there has been no paralysis). The cord may be the seat of profound pathological changes secondary to pressure in the course of Pott's disease, with loss of motion and sensation in the parts below the point of disease, yet perfect recovery take place. This is illustrated in the case reported by Michaud, of a woman, aged thirty-four years, who had total loss of motion and marked diminution of sensation in the lower extremities, with flexion of the thighs on the pelvis, due to pressure upon the cord from thickening of the meninges in the course of Pott's disease, who recovered from the paralysis, but died five years later from the effects of hip-joint disease. On *post-mortem* examination, the cord was found reduced to one-fifth of its volume at the point of pressure, the white substance was sclerosed, and the gray substance reduced to one anterior horn, greatly atrophied. There was also ascending and descending sclerosis, yet the patient could walk.

The two following cases are added as an answer to the inquiry as to how we may shorten the time of recovery.

Augustus G., aged seven years, began to exhibit some symptoms of disease of the spine when about two years of age. When he was three years old a lump began to form in his back, which gradually increased until it attained its present size. He complained of pain in the chest from the first. Two years later he lost power over his lower extremities, and for six months has had a distress, to be presently described, with his bladder and rectum. He was admitted into St. Mary's Hospital for Children, March 2, 1874. There was a marked curvature involving the upper dorsal vertebræ. There were *total* paralysis of motion in the lower extremities and a slight diminution of sensation. The lower limbs were cold, stiff, and atrophied; reflex action increased. He was unable to control the passage of his water; the bladder fills up to a certain extent, and then suddenly empties itself, so that it is impossible to prevent him from wetting his bed. The rectum acts in the same way. A Taylor brace was applied.

May 7th.—His back was cauterized on either side of the curvature, the skin being first chilled with ice.

9th.—Can extend the left leg when it is flexed, but is unable to do so with the right. He has some control over the action of his bladder.

June 3d.—Since last note he has improved rapidly. He can now flex and extend both limbs. He can stand while holding on to a table or chair, and while doing so can take a step forward. He has good control over his bladder and rectum. His back has been cauterized about twice a week.

In August the patient was able to be about, and by September to go up and down stairs. He was kept in the hospital until April 22, 1875, only because he had no home to go to.

Charlotte C., aged five years, was admitted into St. Mary's Hospital for Children, November 15, 1875, with total paralysis of motion and sensation below the umbilicus. She has had disease of the spine for some years. There is a marked curvature in the upper dorsal region. My notes do not state the duration of the paralysis. The bladder and rectum act in the same manner as in the first case, but without the knowledge of the patient. She was kept quiet in bed for two weeks, to see if any improvement would take place in the paralyzed limbs; but, on careful examination, not the slightest amount of motion or sensation could be found. There does not seem to be any disease progressing in the bones.

On November 30th her back was cauterized, and again on December 9th, 15th, and January 12th, after which there was a slight return of sensation in her lower limbs. In the latter part of January she began to have some slight control over her bladder, but it was not until February 28th that any return of motion was noticed, and then only in the great toe. Her back was cauterized about twice a week. In April she was able to go about, and was discharged in September, with full use of her lower limbs. She has been heard from since her discharge, and there has been no return of the paralysis.

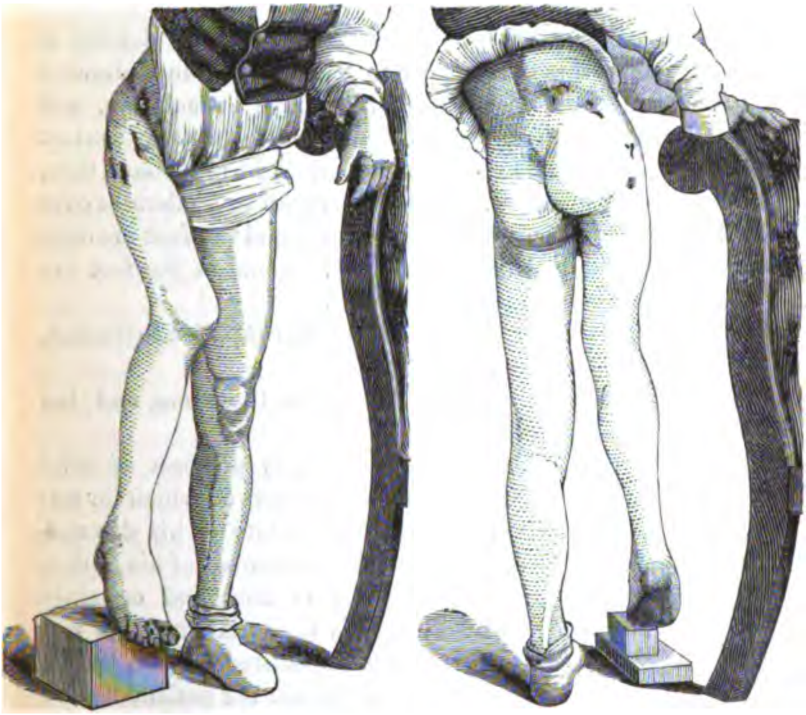
Cauterization of the back is not a new way of treating diseases of the cord. Neurologists frequently make use of this mode of counter-irritation, and no claim is made in this paper for originality. I am aware that there is a great objection among patients and their friends, and even in the profession, to the use of the cauterizing iron, on account of the pain and suppuration that are supposed to follow its application. Used in the following manner, there is no pain, nor any suppuration: 1. The iron should be olive-pointed, and *perfectly smooth;* there must be no thin scales of oxidized metal on it, otherwise it will scratch the skin and make a sore. I use an iron with a platinum cap spun on; it always has a smooth surface, and does not oxidize. 2. The iron must be raised to a *white heat;* a lower temperature always gives pain, and makes a sore. 3. In children I always chill *with ice* the parts to be cauterized, and wipe the skin *perfectly* dry before applying the iron. 4. The iron must be simply brushed over the skin, so that after the operation there is only a whitish line to be seen. I have frequently cauterized the backs of children without their making any complaint; they have been put back in bed, and immediately returned to their toys as though nothing had been done.

I have observed that during the more acute stage, or while the pressure seemed to be increasing, the effect of cauterization only lasted a short time; that, in a day or two, the muscular spasms, pain, distress of the bladder and rectum, and paralysis, returned, so that no permanent good seemed to have been accomplished. Good, firm support should be kept up, unless we are satisfied that anchylosis has taken place.

Clinical Records from Private and Hospital Practice.

I.—*History of a Third Successful Case of Amputation at the Hip-Joint.* By Erskine Mason, M.D.

Joseph Cocoran, aged nineteen, news-dealer by occupation, was sent to me for treatment by Dr. E. C. Harwood, and was admitted into Roosevelt Hospital, July 6, 1877. When three years of age, from a cause unknown to him, he began to suffer from morbus coxarius, which soon left him with some deformity in impaired motion of the hip-joint. At the age of five years he was again attacked with pain in the hip and knee, and became an inmate in one of our hospitals. At this time suppuration took place about the joint, and pus was discharged through an opening on the anterior aspect of the upper portion of the thigh. He remained in the hospital for some time, and was treated by means of extension and counter-extension. The inflammation subsided and the opening of the sinus closed, and he was apparently well, though with impaired motion of the joint. He remained without any pain in the joint till four years ago, when pain again returned in the hip, and during a period of two years no less than fifteen different openings appeared in the vicinity of the joint, and discharged freely. During this period he was more or less of the time under treatment. Twelve of these sinuses have remained open, and the discharge at times has been profuse and offensive. For the last four months he has had some swelling of both feet, but chiefly of the right. Three weeks ago the right foot became quite œdematous, red, and painful, and dark-colored blebs formed upon the dorsum of the toes. This was the history the patient gave me when I first saw him; and at that time, two days before admission into the hospital, the toes were in a gangrenous condition, and very offensive, the disease evidently having a tendency to spread upward on the dorsum of the foot, which was greatly swollen, the integument being of a dusky hue. He stated that the condition of the limb had always interfered with his business, and, as he had to be on his feet most of the time, the limb was now nothing but a burden to him, and he desired to have it entirely removed. In this he had also been advised by others. Upon admission into the hospital the following notes were made of his case: Family history good; has been troubled with a slight cough for the past three months; with the exception of the affected limb, patient is well formed, and in fair condition; organs of chest normal, save a slight amount of dullness at apex of right lung, at which site the expiratory murmur is somewhat prolonged; no *râles* were discovered; urine acid, 1018; negative on both chemical and microscopical examination; the right hip-joint is apparently firmly anchylosed, the thigh strongly adducted and rotated inward; as the patient stands erect, the pelvis is seen tilted up on the affected side; the foot is strongly inverted, and the heel is 7½ inches from the floor, while the whole limb is atrophied. The measurements of the two limbs were as follows



Length of right limb, from anterior superior spine of ilium to external malleoli	33¾	inches.	
Length of left limb, from anterior superior spine of ilium to external malleoli	35⅛	"	
Distance from anterior superior spine of ilium to centre of the patella onright side	16⅝	"	
Distance from anterior superior spine of ilium to centre of the patella on left side........	18¼	"	
Circumference of right buttock..............	14	"	
" " left "	17¼	"	
" " right thigh at its middle....	13⅝	"	
" " left " " "	16⅝	"	
" " right leg " "	11⅜	"	(Swollen.)
" " left " " "	12¼	"	

There are 12 sinuous openings situated over the vicinity of the hip-joint; these all appear to lead toward an indurated mass which seems to surround the whole articulation, and through some of these the probe appears to come in contact with bone. The discharge is at present slight in amount, thin, and somewhat offensive. There is no pain or tenderness over the hip. The lower half of the right leg and the foot are œdematous and red, and on the toes and dorsum of the foot are several sloughy and fœtid ulcerations.

July 8th.—Wet antiseptic dressings were applied to the foot, and the limb bandaged.

13th.—The swelling of foot remains the same, and the sloughing has somewhat increased.

The only operation which afforded any prospect of relief was amputation at the hip-joint, the dangers of which he was made acquainted with; yet he was resolute in his determination to run any risk, could he only be relieved of his limb—which, indeed, was a great burden to him, and certainly threatened ere long to terminate his life. Amputation was accordingly done July 18th, at 3 P. M., assisted by Drs. Sands, Weir, Allin, Briddon, and Sabine. While the patient was on the table and under ether, I examined the limb to determine if the anchylosis were true or false; using a moderate amount of force, I thought I detected a slight motion in the joint, with crepitus; in a second endeavor to verify the same, the femur fractured in its upper third. Esmarch's bandage was applied, and the aorta was compressed by the same instrument (May's modification of Signoroni's tourniquet) which I used in my other two cases (reported in the NEW YORK MEDICAL JOURNAL for December, 1876). This time, however, a sponge was placed between the pad and the integument, with the aim of lessening the pressure which might be made upon any intestine (an idea, I believe, suggested and put in practice by Mr. Lister). The operation was the same as in my other two cases, with the exception of the outer incision, which this case demanded.

The operation was what is usually known as the circular method. The skin being divided with the large knife, it was drawn well up by an assistant and the various muscles divided down to the joint, the soft parts being all the time well retracted. It was now discovered that, though probably there was true anchylosis, a recent fracture had taken place in the joint. Accordingly, the vessels were ligated with silk ligatures, and the compression over the aorta removed, which had been kept up just one hundred seconds. An external incision was now made, to facilitate the removal of the bone. The upper fragment of the femur was seized with the lion-toothed forceps, and removed. The head of the bone had been fractured evidently, I thought, in manipulations to determine the amount of anchylosis that existed, and about one-half of the head of the bone remained in the acetabulum, where it was firmly anchylosed. The hæmorrhage attending the operation was, as in the other cases, very small. Several detached portions of bone were removed from the margin of the acetabulum, and a small sequestrum from the horizontal ramus and body of the pubes. The portion of the head of the bone remaining in the acetabulum, being vascular and apparently healthy, was not disturbed. The wound was thoroughly irrigated with a solution of salicylic acid 1 to 50; a drainage-tube was introduced and wound closed with silk sutures, the ligatures, twelve in number, being brought out at the angle of the wound. The stump was now dressed with Lister's antiseptic dressing, which, with the spray of carbolic acid, was used during the treatment of the case. His pulse remained good throughout the operation. At the moment of severing the limb from the body a hypodermic injection of whiskey (half a drachm) was given. He was not removed from the theatre till pretty well out of the influence of the ether, when a hypodermic injection of twelve minims of Magendie's solution of morphia was given. At 6 P. M. his pulse was 80, and strong; temperature, 98½°; 9 P. M., sleeping quietly. Was given one grain of opium when he awoke, at 11 P. M., complaining of pain in his knee.

19th. — 9 A. M., pulse, 124; temperature, 99°. Wound dressed, and thoroughly irrigated with carbolic acid. Feels weak, and complains of pain, which is referred to the knee.

20th.—Vomited once or twice during the night; with this exception, passed a good night. 9 A. M., pulse, 112; temperature, 98⅘°.

22d.—Edges of the wound have almost entirely united; discharge is thin, and red in color; the drainage-tube was removed.

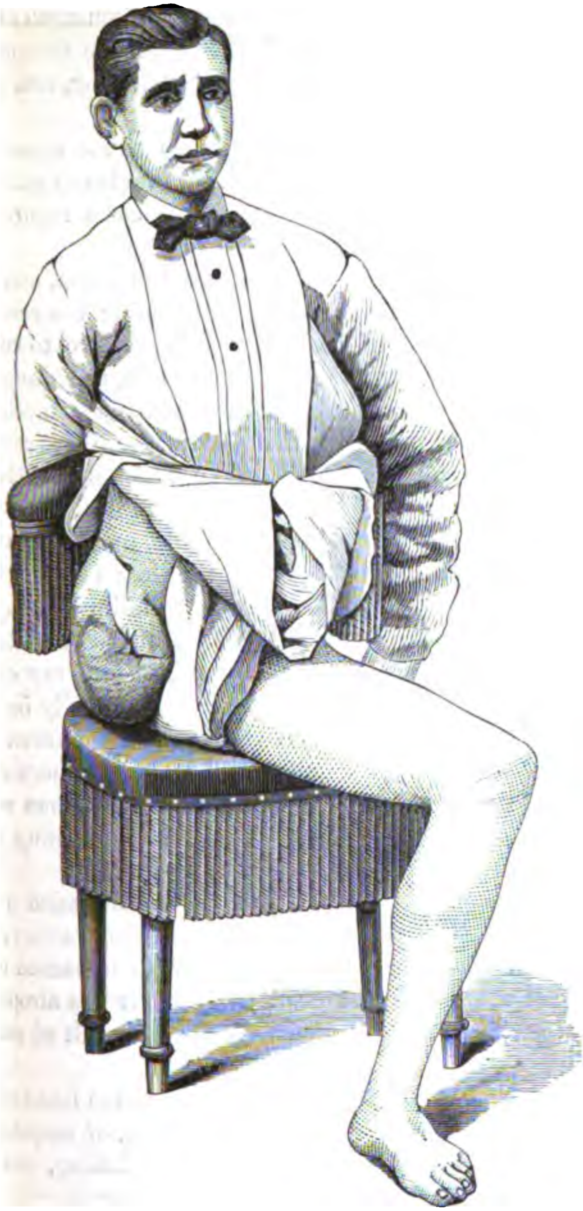
25th.—The sutures have all been removed; the flaps are adherent throughout the greater portion of the wound; at parts where remaining open, healthy granulations are present.

Without giving a daily record of the case it may be sufficient to state that everything progressed most satisfactorily, and the patient was up and walking about on his crutches August 14th.

August 21st.—Lister's dressing now irritated the integuments of the stump, and was dispensed with, sheet lint spread with simple cerate and salicylized jute being substituted.

September 16th.—Patient left the hospital at this time. The face of the stump was healed, but there remained open one or two of the old sinuses, which were discharging but little; for the treatment of these the patient occasionally reported at the hospital. He has now no cough, has gained considerably in weight, enjoys perfect health, and has attended to his business daily since leaving the hospital.

During the whole time he was under treatment his temperature never rose above 99⅕°.



December 15th.—The day this photograph was taken, there remained one small opening, which hardly discharged at all, just below Poupart's ligament, and one on the face of the stump, which the patient states is now fast closing, and gives no trouble.

I can add nothing more, with reference to the manner of performing this operation, to what I have previously stated, in the remarks appended to the history of the cases reported in this JOURNAL for December, 1876.

With the use of the tourniquet over the aorta, and this carefully applied with a soft sponge intervening between the pad and the abdomen, and permitting this pressure to remain just long enough to secure the anterior vessels, the danger to injury of the intestines or peritoneum is greatly lessened. No more pressure is required than that which would be required from pressure made by the hands of an assistant, while it is more certain, and less liable to be removed from the vessel than digital compression. With this, and Esmarch's bandage, the operation is accomplished with the loss of but a few ounces of blood; and the shock is further diminished by giving a drachm of brandy or whiskey subcutaneously at the moment the limb is severed from the body. From my experience in these three cases my preference is decidedly in favor of the circular method. The vessels are readily secured; the surface of the wound is smaller, and it is far more easily dressed, and with less disturbance to the patient, than would be after the operation by flaps. The stump resulting from the circular method is all that could be desired.

Examination of the limb of this patient revealed a diseased condition of a portion of the anterior tibial artery, and in this locality the lumen of the vessel was encroached upon by a deposit upon its inner coat. The femur was atrophied, and its upper five inches are roughened—the result of periostitis.

In conclusion, it may be of interest to add the latest statistics that have appeared, as far as I am aware, of amputation at the hip-joint. These are by Dr. August Lüling, and are given in the *Deutsche Zeitschrift für Chirurgie*, vol. viii., page 327 (June 15, 1877). They are as follows:

Traumatic	Mortality,	85	per cent.
Gunshot traumatic	"	88	"
Pathological	"	42	"
Re-amputation	"	40	"
After previous resection	"	50	"
General mortality in 486 cases	"	70	"

Of 239 fatal cases, 5½ per cent. died during the operation; 12½ per cent. during the first hour; 26 per cent. in the course of 5 hours, 5 of these from chloroform; 46 per cent. in 24 hours. Eighteen cases died from pyæmia, 70 per cent. in 5 days. Eight times death followed from secondary hæmorrhage.

Correspondence.

LETTER FROM LONDON.

LONDON, *December* 20, 1877.

THE medical atmosphere of London just now is full of germs. Many of them, indeed, as the authorities suggest, are invisible, ultra-microscopical, and difficult of definition or description; but, nevertheless, they are about us everywhere, especially in hospitals, and, as Mr. Lister unpleasantly suggests, in dairies. The fact is that nearly everything, just now, in natural history and medicine, is subordinated to this question of germs. Prof. Tyndall has lately discoursed on it from his point of view, and it has been the subject of statement this week before very special audiences. Last Saturday Dr. Burdon-Sanderson commenced his annual course of five lectures on Comparative Pathology, at the University of London. The subjects were as follows: 1. Introduction: Infective Processes in General; 2. The Phenomena, Etiology, and Pathology of Septicæmia; 3. The Germ Theory, and its Relation to the Results of the Antiseptic and Colytic Treatment of Wounds; 4. Specific Infections, and the Theory of Contagium Vivum; 5. Demonstration of Microscopical Preparations, and of Methods referred to in the preceding Lectures. It is beyond the scope of such a letter as mine to give minute accounts of Dr. Sanderson's views. Generally he seems not to differ from Prof. Lister in respect to the importance of bacteria. Both seem to regard them as essential factors in fermentative and septic processes; Mr. Lister regarding them as the essential agent, Dr. Sanderson, apparently, as the constant carriers of the essential agent. The audience assembled at the Burlington Gardens to hear Dr. Sanderson is very significant, both as a compliment to him and as a proof that the profession feels that in this region of germs there lies the secret of discoveries in regard to processes interesting alike to physiologists, pathologists, and physicians. The audiences contained nearly every representative man in the profession whose engagements permitted him to be present; conspicuously, Sir Thomas Watson, Dr. Bennett, President of the College of Physicians, Mr. Bowman, Mr. Lister, Dr. Sharpey, Mr. Spencer Wells, Dr. Allen Thomson, late Professor of Anatomy in Glasgow, etc.

A still more significant exposition of the subject of germs was given this week. On Tuesday night Mr. Lister made his *début* before the London medical societies, by a discourse to the Pathological Society on "The Lactic Fermentation, and its Bearing on Pathological Processes." It was curious to see the virtual successor of Sir William Fergusson discoursing for a whole hour and a half, not on amputations and excisions, but on milk, and its different behavior when exposed to various kinds of atmospheres, or when protected from solid particles floating in the air, and with no savory *post-mortem* specimens before him, unless this epithet could be applied to some specimens of milk that had been cruelly left unprotected from germicides. Here, again, the audience and its behavior were significant. The room of the Pathological Society was crowded, and the audience included all that was representative in surgery as well as medicine, and doubtless not a few who do not yet quite see why all this fuss should be made about objects so small as to be often invisible. The crowd was the more significant, as there still perhaps lingers in some minds in London a little feeling of offense at the expressions used by Mr. Lister to his students, before he determined to leave Edinburgh, in disparagement of the clinical teachings of surgery in London. There is no doubt that Mr. Lister's expressions were unfortunate, and that his attempts at explanation were not much happier in character. But there is equally little doubt about his earnestness in all that he says, and about the importance of his views and his system, whether regarded in a scientific or a practical light. Such a man may be safely trusted to conciliate London surgeons, and to make them feel that his statements have no admixture of littleness or personality in them, and are deserving of the most generous and respectful consideration.

At King's College Mr. Lister has already given wonderful illustrations of the fact that things may be done under his antiseptic spray and gauze which would be simply disastrous apart from these. One case has attracted, and will attract, much attention—a case of recent fracture of the patella. He took a bold course, with the consent of the patient. He laid open the patella, and of course the joint; removed the blood and other substances from between the fragments, and brought them together with silver wires. Through Mr. Lister's kindness, I had the opportunity of seeing this case dressed nine or ten days after the operation. The man was more comfortable in appearance than I have seen people look at the same stage of the accident treated in the ordinary way. His pulse and temperature were normal, his joint free from swelling, and the last horse-hairs used as drainage-tubes, on removal, were found free from smell or pus. The pulse had only once been 100. The great question now remaining is, What will be the ultimate state of the joint? Mr. Lister expects it to be as good as before the accident. We shall see. Meantime the man has gone through an ordeal which would have been impracticable but for the antiseptic system. There has lately been an amputation of the hip, and there have been two cases of thyrotomy by Mr. Lister.

This week is historical in London surgery for another reason, viz., the retirement from the honorary surgeoncy of the Samaritan Hospital of Mr. Spencer Wells. He was to perform his last operation there yesterday. Long may he live to continue in private practice the services by which hospital patients have been so splendidly benefited! Few men can boast of having so relieved suffering, and so prolonged life, as he has by his 900 ovariotomies, done, in the first instance, amid the denunciations of those who ruled in medical societies. I have seen him this week, and can testify that he bears no malice against early opponents, but enjoys the consciousness of a man who has seen all opposition melt into admiration, and a score of men rising up, under the influence of his example and teaching, to perpetuate the operation which will be forever associated with his name and skill.

Clinical Reports of the Demilt Dispensary.

CLASS IN DISEASES OF THE DIGESTIVE SYSTEM.

By Dr. Lawrence Johnson.

The Sulphate of Cinchonia as a Substitute for the Sulphate of Quinine.—Owing to the large number of cases of malarial disease which came under treatment during the latter part of the summer, and the high price of quinine, it seemed desirable to substitute some one of the cheaper alkaloids of cinchonia. Having become well satisfied with the tonic powers of the sulphate of cinchonia, from long use of it in one of the standard tonic mixtures of the dispensary, this drug was chosen for experimentation. It was used in a large number of cases; some of them presenting the ordinary type of tertian intermittents, while many others showed malarial poisoning in the form of intermittent neuralgias, etc. No elaborate analysis of the cases treated will be attempted, mainly because such analyses are already on record.[1] Indeed, the only aim of this report is to again direct the attention of the profession to a fact long since established, but generally overlooked in practice, that the sulphate of cinchonia possesses very valuable anti-periodic powers, which ought to insure its employment much more frequently than at present.

Of the cases of well-marked intermittent fever treated, the greater portion were persons who had resided, at least a part of the summer, in New Jersey or on Long Island. Indeed, most of them had moved into the city from the vicinity of Astoria, Dutch Kills, and Woodside, Long Island, where malarial fevers were very prevalent late in the summer and during the fall. Of these, many showed the profound anæmia incident to the prolonged influence of malaria, and thus were well calculated to test the powers of the remedy employed.

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[1] Vide *American Journal of the Medical Sciences*, January, 1853, and April, 1864.

As to the manner of administering the drug, it was generally given in pills of three grains each, from one to three being taken three or four times daily. Thus the patients received from nine to thirty-six grains per day, according to the age and type of the disease. One of the doses was given an hour or two in anticipation of the chill; and, whenever practicable, the patient was directed to lie down at this time, and remain warmly covered until an hour or two after the chill had passed, or should have passed, in case it did not make its appearance.

A few cases only will be mentioned in detail, although notes were taken by my assistant, Dr. J. A. Nowlan, of a large number, in whom the results of treatment were quite as satisfactory as in these now to be narrated.

Case I.—Ann W., New York, aged thirty-two, married, presented herself December 12, 1876, with the following history: Nine weeks ago had, for several days, chills every other day, followed by fever and sweating. She took some medicine, which interrupted the paroxysms for fifteen days, when they recurred, and have continued every other day to the present time. She had been under treatment recently, but without benefit. Was very pale and anæmic, and showed all the features of malarial poisoning to a very marked extent. She was directed to take two pills of cinchonia sulphate three times daily.

December 15th.—Had no chill yesterday, or to-day. The same treatment to be continued.

21st.—Has had no chill since commencing the treatment. Was directed to take a mixture containing tinct. ferri chlor., gtt. xv., and cinchoniæ sulph., gr. j, three times daily.

January 7th.—She presented herself again, very much improved in appearance, and still free from chills.

Case II.—Lizzie J., New York, aged eighteen, presented herself October 23, 1877. She contracted intermittent fever about the last of July, at Roslyn, Long Island; came to this city about the 1st of August. At that time had a chill every other day, and has continued in nearly the same condition ever since. Had taken quinine in pills, powders, and solutions from time to time, as she had procured it herself at the drug-stores. At the time she reported, was having chills every other day. She was directed to take two pills of cinchonia sulphate three times daily.

October 29th.—Has had no chill since. Continue as before.

November 9th.—Had been without pills four or five days, and had suffered a return of the chills. The same treatment was continued, with the addition of the tonic mixture mentioned in Case I.

16th.—Has had two chills since last report, a week ago, with an interval of four days between them. The same treatment was continued. She did not report again until December 5th, and then stated that she had suffered no return of the chills. She continued the tonic mixture a few days longer, and about the last of December reported herself as well as ever.

Case III.—Henry P., England, aged twelve, presented himself December 7th, for "medicine for the chills." Had been living until recently at Dutch Kills, Long Island, but the whole family of which he is a member was obliged to remove, on account of malarial sickness. He had been suffering all summer, and was very pale and anæmic. Had been taking quinine at intervals most of the time. The chill ceased for a few days about two weeks ago, but for the last three days he has had a chill every day. He was directed to take two pills of cinchonia sulphate three times daily. He had no return of the trouble from that time up to the last of the month, when he appeared for the last time, having been in the meanwhile taking the cinchonia sulphate steadily, either in pill, or in mixture with iron, as above.

Case IV.—Adeline P., England, aged fourteen, sister of

Case III., presented herself the same day, giving about the same history, with the exception only that she was having a chill daily. She was directed to take two pills four times a day. She had but one chill subsequently, but in its stead had a slight fever every day. After a time the cinchonia was dropped, and quinine in the same doses substituted for it; still her gain has been slow, and even now (January 8, 1878) she is not perfectly restored to health.

The above are a few of the well-marked cases of intermittents treated upon the plan laid down at the beginning of this report, but they are typical of a large number treated with very gratifying results. Of the large number of cases of various disorders bearing the taint of malaria, and which were subjected to the action of cinchonia sulphate, in addition to other treatment appropriate to their various features, nothing will be said save that it gave entire satisfaction, and far surpassed the anticipations had of it at the commencement of the experiments.

It would seem, then, that the sulphate of cinchonia may be relied upon in a measure as a substitute for the sulphate of quinine, whenever, from motives of economy, the practitioner desires such a substitute. At the present writing, sulphate of cinchonia costs little more than one-tenth as much as sulphate of quinine—a difference that is well worth considering in all charitable institutions; in very many of those cases where patients buy their medicine; and especially when physicians—as is too often the case—are obliged to furnish both advice and medicines for little or no compensation.

CLASS IN DISEASES OF CHILDREN.

By Dr. E. F. Walker.

A Fatal Case of Gangrene of the Mouth.—On July 16, 1877, George G., aged eighteen months, was presented to me for treatment, and the following notes were taken at the time: Child badly nourished and anæmic; mother states he has always been feeble; has had chills and fever, and about one year ago caught a severe cold, from which time he has never been well; is pining away, and never appears like other children of the same age. On July 13th (three days before I first saw him) had first refused to take nourishment, and the mother, seeking for a cause, discovered a small ulcer on the lower gum. Upon examination, I found between the lower incisors, in the situation stated, an ulcer, measuring in its longest diameter one-quarter of an inch, and in its shortest about one-eighth, irregularly ovoid in shape, and of a dark bluish, almost black, color. The tissues immediately surrounding it were swollen; the tongue was coated; bowels were constipated, and the temperature was elevated. The child was very fretful. I at once applied to the ulcer nitrate of silver in solid stick, and directed the mother to keep the parts clean, and apply a lotion of carbolic acid (ʒj ad aq. Oj); I also ordered cod-liver oil to be given internally, together with a solution of the sulphate of quinine in two-grain doses repeated three or four times a day. The food was to be condensed milk slightly diluted, and given as often as possible.

When next I saw the child it was on the 18th, and by this time the ulcerated surface extended from the posterior edge of the first molar tooth on the right to a corresponding position on the left side. The report of its taking nourishment was now more encouraging. Ordered brandy to be combined with the milk, and ten drops three times a day of the tinct. ferri chlor.

The lower lip at this time was very much inflamed, and the destructive action was progressing beneath the mucous membrane, and working its way toward the external aspect of the lip. The child's disposition was better; it was less fretful, but the bowels had still to be moved by enemata. I discontinued the carbolic-acid lotion, and advised the use of the following prescription, recommended by Dr. J. Lewis Smith, in his work on "Diseases of Children," page 569:

℞. Cupri sulphat.	ʒ ij.
Pulv. cinchoniæ	℥ ss.
Aquæ	℥ iv.
M.	

This was to be applied locally three times a day.

I next saw the child on July 20th, and then the lower lip was perforated, and the gangrene had extended far back in the mouth on the lower gums. Three days later the whole lower lip was involved, from the angles of the mouth, and was hanging down so as to show the alveolar process of the lower jaw, which was denuded of the tissues. The disease was evidently progressing rapidly, and seven days later a portion of the alveolar process was destroyed, showing the roots of the incisors. I had to administer opiates to keep the patient at all quiet, and used for that purpose Magendie's solution of morphia. The odor from the slough was almost unbearable, and I tried to control it with a solution of bromine, 30 grains to the ℥j, but it had little or no effect. On July 28th the lip began to separate from the jaw, and the next day, by its own weight, had so nearly dropped off that it was easily detached.

On July 30th there was a line of demarkation, but high up on the cheek, above the level of the alæ nasi. Dr. Dittmer, of Rotterdam, Holland, saw the case with me on this day, and at his suggestion I applied a solution of camphor, locally, in the following proportions: ℞. Camphor., ℥ijss; alcohol. (absolut.), ʒviij. The next day the upper lip showed that it, too, was becoming involved, as well as the roof of the mouth and upper gum. The camphor was the best reagent I had tried for deodorizing purposes, and had improved the appearance of the gangrenous surface. A transient left hemiplegia appeared at this time.

August 1st.—Made my last visit to the child during its life. I found it in tetanic convulsions of the body and extremities; as a consequence of the latter, nothing could be administered by the mouth, and at four o'clock the next morning the child died. An autopsy was performed four hours after death by Dr. Heineman, of this city, and the report is as follows: Body much emaciated; brain not examined; heart slightly enlarged, with the apex resting in the axillary line; both ventricles contained an *ante-mortem* clot; the valves normal. The left lung was compressed, and firmly adherent to the chest-walls by old pleuritic adhesions. The right lung was in a condition of compensatory hypertrophy and emphysema, occupying the whole of the mediastinal space, and extending at least one-half inch beyond the sternal edge to the left. No disease appeared in liver, spleen, or kidneys. The stomach, on being opened, was found to be coated internally with mucus, and in a condition of chronic catarrhal gastritis.

On examining the seat of the gangrene, it was found to have extended as far down on the neck as the superior border of the thyroid cartilage, and back on the cheeks as far as the inner third of the body of the jaw on both sides, on a line parallel with the alæ nasi.

The child had suffered nineteen days in all, and, considering that he was feeble at the outset, it seems quite remarkable that life should have been prolonged sufficiently to allow the disease to make such fearful inroads.

Case I. *Calomel in the Treatment of Pin and Tape Worms.*—On October 12, 1877, a child, Mary H., three years old, was brought to the class with the following history: The mother has noticed for the past four weeks a leucorrhœa, which has become very profuse, and emits a very offensive odor. The girl is also fretful, and complains of pain in the bowels; she sleeps badly, and has lost her usual regular habit of a daily evacuation from the bowels. She complains of soreness about the vulva, and great itching, which has caused her to scratch the parts until they are red and sore. On making an examination, I found the genitals much swollen and very sensitive. The clothing was covered with the vaginal discharge, which was muco-purulent, and exceedingly offensive. Separating the labia, the mucous membrane was very much inflamed; but it was impossible to examine the vagina owing to the child's youth. I then inquired carefully as to her habits, to learn if the vaginitis was not a result of masturbation; but the mother assured me she had been carefully watched, and that such was not the case. I therefore decided that the trouble was owing to intestinal worms, and ordered her to take two drachms of the fluid extract of spigelia and sumac on an empty stomach, and repeat it for four mornings consecutively. On the next visit it was said that two or three pin-worms had been vomited, but that the discharge was no better, and, indeed, was more profuse. I ordered, for an injection to the vagina, ten grains each of borax and chlorate of potash to an ounce of water, and gave her also a dose of santonine. Three days later no improvement had taken place, and I decided to administer ten grains of calomel in a single dose, followed by castor-oil. Two days later the mother reported that the powder and oil caused the child to pass "a ball of little worms," and that the discharge was much better. Still there was considerable soreness about the parts, and I ordered the oxide of zinc to be dusted over the surface, and also to be combined with water and thrown up into the vagina.

Subsequently I saw the child, and then she complained of the discharge from the rectum, and said that it was tinged with blood. This, however, at the present writing (November 25th), is rapidly disappearing. I find that, among dispensary patients suffering from these intestinal worms, large doses of calomel seem to give better results than any of the ordinary drugs; and I have made it almost a rule, when satisfied that the worms occupy the canal, to give one large dose of calomel. The treatment has been pretty uniformly successful.

Case II.—John J., aged six years, came to the dispensary, December 17, 1877, giving a history of tape-worm. From time to time he had passed "a link or two," as the mother said. Several remedies were tried, with but poor success, until I determined to use calomel. Accordingly I gave him ten grains in a single dose, and followed it by castor-oil; the mother returned two days after with the entire worm, measuring eleven feet. I examined the specimen carefully, to be sure the head was present, and was gratified to find it.

Arsenic in Eczema Capitis.—Quite a number of cases of this disease among young children have come under my care, and the recital of one or two will suffice to show the treatment which I have adopted, with satisfactory results. The following are instances:

Case I.—John M., aged seven months, came to me December 3d. His face and head were covered as by one scab. The child had been allowed the free use of his hands, and had torn the face and head so much that its appearance was disgusting in the extreme. On inquiring as to the food, I found that the mother had weaned him. He was taking condensed milk, of which he drank, according to her account, a pint a day. "He vomits almost constantly after being fed," was her remark. The bowels were constipated, and the child very fretful. I ordered for him one-third the amount of milk, directing the mother to dilute it more, and also to enforce regular hours for feeding, which she observed, and marked improvement followed. I also ordered one drop of Fowler's solution of arsenic three times a day, and one grain of calomel at a single dose; locally I used nothing. At the end of a week the mother returned, and the appearance of the child was much improved. He had been carefully watched, and was not allowed to scratch himself. The whole surface of the diseased parts, instead of being moist and bleeding, had dried up, and in many places the scabs had fallen off, showing a sound surface beneath. I then ordered the mother to increase the arsenic to five drops a day, and once a week to give a powder (one grain of calomel). I have increased the Fowler's solution until he has taken three drops three times daily. It is now over three weeks since his mother first brought him to the dispensary, and there is hardly a scab to be seen. The only place now affected is on the crown of the head, and there the scabs are gradually falling off, showing healthy skin beneath.

Case II.—Mary X., four months old, applied the same day, for treatment of a similar trouble. The child was nursing from the breast, and had only shown symptoms of the disease for about three or four weeks. It was very restless and fretful, and the itching of the eruption seemed to cause it great annoyance. I ordered in this case, as in the last, Fowler's solution, but in doses of only half a drop three times a day, giving in addition, for the bowels, syrup of rhubarb. The mother returned nine days after I had first seen the patient. The improvement was marked, and at the present writing (January 3d) the child is entirely relieved. I have had a number of these cases, both in dispensary and private practice, and have found arsenic acts so well that I look upon it as a specific. Sometimes it becomes necessary to give some quieting ointment to use locally, and I have found the simple cerate, or vaseline, with a small quantity of sulphate of morphia, to act very well.

Proceedings of Societies.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, December 26, 1877.

Dr. E. G. Janeway, President.

Sarcoma of Thalamus Opticus.—Dr. E. C. Seguin presented a section of sarcomatous tumor of the optic thalamus. The patient from whom the specimen was obtained had been under the care of Dr. Willard Parker, Jr., and was subsequently seen by Dr. Briddon. There were no symptoms of cerebral tumor. The only malady she complained of was dyspepsia. At the autopsy an interstitial tumor about the size of a nut was discovered in the right thalamus opticus. The explanation of the entire absence of symptoms was probably due to the fact that there was no pressure on the nervous tracts passing below the thalamus.

Dr. Janeway had seen two cases in which hæmorrhage had occurred near the site of the tumor presented by Dr. Seguin. In one of them there was marked anæsthesia.

Uterine Fibroid.—Dr. Post presented a fibroid tumor which he had removed from the uterus of a woman at the Presbyterian Hospital. She was thirty-four years of age, and had had several abortions. Considerable rectal and vesical irritation was complained of, as well as retention of urine. When she was admitted to hospital the os uteri was the size of half a dollar, and through it the tumor could be made out. The uterus measured four and a half inches when the sound was introduced. The fluid extract of ergot was continued for several weeks in doses of one drachm three and four times a day, but without any special benefit. It was decided to attempt extraction. The uterus was pushed down into the pelvis, and the tumor grasped by a strong forceps. The adhesions were separated by the fingers, and by Thomas's serrated spoon. After the growth had been dragged down a little way, a strong ligature was passed into it and steady traction made. It was found, however, that the os internum firmly grasped the tumor and prevented its coming down. The os was then nicked, and in forty-five minutes the growth was removed. It weighed one pound one ounce. Profuse hæmorrhage occurred shortly after the removal of the tumor, but subsequently the patient did well.

Renal Calculi.—Dr. AMIDON presented two cases of renal calculi. The first case was a patient aged thirty-one, suffering from Bright's disease. At the autopsy there was found cardiac hypertrophy. The right kidney was enlarged. The calculus was found in the pelvis of the left kidney. The second case entered hospital suffering from an abscess on the neck, and died from asthenia. At the autopsy there was found an enlarged prostate, but no stone. The right kidney was normal. The pelvis of the left was distended with a purulent fluid, and contained a stone the size of a walnut.

Cerebral Tumor.—Dr. SEGUIN presented the history of a case of cerebral tumor occurring in an epileptic patient. The patient had had many epileptic attacks, and suffered severely from headache. There was hemiplegia. An examination with the ophthalmoscope showed no sign of choked disk. At the autopsy an egg-shaped tumor was found on the temporo-sphenoid convolution.

Vesical Vegetation.—Dr. STIMSON presented some vegetations covered with epithelium which were passed from the bladder by a child one year and seven months old.

Stated Meeting, January 9, 1878.

Dr. E. G. JANEWAY, President.

Cystic Tumor of the Brain.—Dr. F. R. S. DRAKE presented, on behalf a candidate, a specimen of cystic tumor of the brain accompanied with a written history. The patient, a newsboy, had been injured on the head about a year ago, and, seemingly as a result of the injury, there occurred paralysis. He presented himself for treatment at the Out-Door Poor Department of Bellevue Hospital, and it was found that the right side of the body showed slight evidence of paralysis. The patient complained of severe periodical headache. The memory was impaired. The day before death the patient was in better health than usual, but in the evening severe pain came on, which was followed by coma and death. At the autopsy the saw entered the brain-substance while the calvarium was being removed, and permitted the escape of some serum. The superior surface of the brain was depressed over a small area, and on examining closely there was found to be a cyst with a small opering, which had permitted the escape of the contents. This was accounted for by the fact that the membranes were attached over the cyst, and, on removing them, the cyst was opened. This cyst encroached upon the substance of the brain. A second cyst was found in the substance of the brain, which rested on the corpus striatum and thalamus opticus. Before section the cyst resembled a hard tumor, but was found to contain a serous fluid, with shreds of membrane. The cyst-wall was made up of connective tissue. There were no evidences of echinococci in either cyst. The case was of interest from a medico-legal standpoint, as the father of the patient intended to prosecute the man who caused the injury which he supposed had proved fatal to his son. Dr. Drake was unable to give the precise locality of the tumor on the surface of the brain.

Microscopical Examination of Cerebral Tumor.—Dr. E. C. SEGUIN exhibited a microscopical section of a cerebral tumor, which he had presented at the previous meeting. It rested on the temporo-sphenoid convolution. The tumor was a sarcoma, in which there were nests of cells.

Thrombosis of the Ovarian Vein.—Dr. JANEWAY presented the uterus and appendages removed from a patient who had died of pyæmia. The history was as follows: A woman, aged forty, entered Bellevue Hospital, suffering from pyæmia. She had been confined November 9th, at full term. The labor was in every respect natural. She had, however, the evening before delivery, a chill. She did well for a week, but on November 17th had a chill, and on November 19th entered hospital, when symptoms of pyæmia were found. Pulse, 118; temperature, 104½°. The knees were quite painful, and over the left wrist an abscess was noticed. The right knee was explored with a hypodermic needle, but no pus was obtained. An examination of the vagina showed the uterus to be normal. An abscess was found to exist between the rectum and vagina. The diagnosis of thrombosis of the ovarian vein was made. The patient continued without much change till December 6th, when she died. The temperature increased in the evening and fell in the morning toward the close, and delirium came on.

Autopsy.—Heart normal. There were two coagulations in the pulmonary artery, one due to thrombosis, and the other, seemingly, to an embolus. The pleura contained an effusion. The right knee contained thick pus. There was thrombosis of the right ovarian vein. The left ovarian vein was normal. The vena cava contained a thrombus, extending two inches above the opening of the ovarian vein, but not below. An abscess was found between the rectum and vagina. Extending up from it to the left ovary was a small band of inflamed connective tissue. Dr. Janeway was of opinion that the embolism of the pulmonary artery was due to the thrombosis of the iliac vein. In answer to a question from Dr. Van Giesen, Dr. Janeway stated that, in all probability, the starting-point of the thrombosis of the ovarian vein was the abscess situated between the rectum and vagina. From it a band of inflamed connective tissue could be traced to the ovary. There was no phlegmasia dolens.

Thrombosis of both Iliac Veins, extending into the Femoral.—Dr. Janeway presented a specimen of the femoral vein showing thrombosis. A woman, aged twenty-five, entered Bellevue Hospital December 15, 1877. She had been confined with her second child two months before admission. The labor was natural, but one week subsequently her leg began to swell. When she was examined in the ward, the right lower extremity was found to be enlarged. Temperature, 103½°. A systolic murmur was heard at base and apex. The kidneys and spleen were normal. December 20th, a red spot noticed over Poupart's ligament. It was tender and indurated. December 24th, had neither chills nor sweats. December 25th, diarrhœa occurred, of a very profuse character, causing marked prostration. It was noticed that the breath had a sweetish odor. Death occurred January 1, 1878. The patient had for some time before death œdema of the lungs.

Autopsy.—There was fatty degeneration of liver and kidneys. A thrombus was found in the vena cava, which extended up to the right ovarian vein, but did not involve it. The left iliac vein was occluded by the thrombus, which extended down into the right femoral vein. The examination of the legs was not permitted by the friends, but all of the femoral vein removed showed the presence of thrombosis. The ovarian veins were normal. There were no local inflammations. The right lung had in the lower lobe an infarction, with granular centre, and suppuration on its surface. The kidneys were fatty and enlarged. The murmurs which were heard with the systole of the heart were of an anæmic character, though it was suspected, before the patient died, that there might be vegetations on the valves of the heart. None were found. The patient had a profuse hæmorrhage after labor, and it was suspected that the induced debility resulted in thrombosis.

Tracheotomy in Tubercular Diseases of the Larynx.—Dr. JOHN H. RIPLEY presented a patient upon whom he had performed tracheotomy for œdema of the larynx, resulting from tubercular disease. The patient was admitted to St. Francis's Hospital suffering from extreme dyspnœa. The history obtained was as follows: E. F., aged twenty-five. Family history good. Had chills and fever eighteen months previously, which was followed by a persistent cough. Nine months before admission considerable hoarseness was noticed. There was also loss of strength. The patient complained latterly of pain in the pharynx when swallowing. Last Thanksgiving-day had an attack of dyspnœa which nearly proved fatal. When he was admitted to hospital the dyspnœa was very marked, and it was considered advisable to perform tracheotomy. Chloroform was administered, but before the trachea was opened the patient showed signs of cardiac syncope. The administration of the anæsthetic was then stopped and the operation completed. Following the operation there was entire relief of the dyspnœa. The patient was examined by Dr. ELSBERG six hours after the operation, when it was found that there was complete closure of the larynx. Dr. Ripley said that there could be no doubt that the operation relieved the dyspnœa and prolonged life. There was but little to hope for in the way of cure, as the patient was in the third stage of phthisis.

Dr. **Beverly Robinson** said that the case was interesting and instructive. He had at a previous meeting suggested the performance of tracheotomy, to relieve the larynx and allow of rest, in cases of tubercular and syphilitic disease of that organ.

Dr. **Van Dusen** wished to know the opinion of the society in regard to the frequency of cases of œdema of larynx in which the operation of tracheotomy would be indicated. He referred to cases in which the œdema was a complication of chronic disease. He had a case under observation where relief was obtained by the use of steam inhalations. He was of the opinion that it was very rare for cases to require operative interference.

Dr. **Elsberg** said that he had operated five or six times, and had advised in about twenty other cases the performance of the operation. Relief of the dyspnœa followed the operation, but it was not to be supposed that any permanent good would result in the progress of the tuberculosis. He considered the operation as justifiable, to avert the immediate danger of death. The operation would seem to be specially indicated in cases where there was progressively increasing dyspnœa rather than in acute attacks.

Dr. **Janeway** said that it must be conceded that cases of tubercular disease of the larynx requiring operative interference were rare, for the reason that in large hospitals, where there were a great many such cases, tracheotomy was a rare operation. He had seen, many years ago, in private practice, a man suffering from phthisis who developed œdema of the larynx with great dyspnœa. The operation was strongly advised as the only means of preventing death. The patient, however, persistently refused. On the following morning the dyspnœa had in great part disappeared.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, January 8, 1878.

Dr. A. J. C. Skene, President, in the Chair.

Dr. Gillette related a case of suppurating ovarian cyst which had ruptured into the peritoneal cavity, possibly in consequence of a slip or partial fall, when something was felt by the patient to "give way." When first seen there were signs of peritonitis, and the general condition of the patient was bad. After an exploratory puncture by the hypodermic syringe, the aspirator was used, and three quarts of fluid withdrawn. An operation for removal of the tumor was decided on, as the pulse and temperature had fallen after the use of the aspirator, and the patient continued to improve for a week; but she then suffered from frequent vomiting, and sank into a typhoid state, in which she died two weeks later.

It was impossible to obtain a satisfactory autopsy, but it was ascertained that the collapsed and suppurating cyst was firmly adherent, and that it included the left ovary.

Dr. Gillette asked the opinion of the society as to the propriety of operating in the case of suppurating ovarian cysts, and related one such case in which he had operated with the result of saving the patient's life.

Dr. Ward mentioned a case in which ovariotomy was performed during inflammation of the sac. The temperature fell from 104° and 105° to 99½°, and the patient did well for four days, but subsequently died from causes in no way connected with the condition of the sac.

Dr. Hunter said that Keith had reported a number of cases of ovariotomy performed under apparently desperate circumstances as to temperature, etc., with remarkably good results.

Dr. Mundé said the percentage of recoveries was so large that the surgeon was not doing his duty if he neglected to operate because of inflammation.

Dr. Skene said no question was more difficult to decide than that of the propriety of operating on a patient suffering from peritonitis and suppurating cyst; but it was often next to impossible to tell if a cyst was inflamed or not. In one case he had removed a little fluid from a monocyst with a fine trochar and canula, and found it nearly clear. This simple operation was followed by inflammation, and the patient came near dying. There was afterward a profuse discharge of creamy pus from the umbilicus, which continued to some extent for years. The woman at last died of phthisis. He had operated once when there was inflammation of the sac and peritonitis. The patient was sixty-two years old, and rallied well after the operation, the temperature going down. Unfortunately, she was allowed to get up, when she fainted, and died immediately. Some of the cysts in this case contained pus, others did not.

Dr. MUNDÉ called attention to the fact of inflammation having followed aspiration, even with a hypodermic needle; showing that even that operation was not devoid of danger.

Dr. HANKS said inflammation followed the removal of fluid by the hypodermic syringe, not merely the use of the needle.

Dr. MUNDÉ said there was one case recorded in which adhesions subsequently found proved that inflammation was caused by the hypodermic syringe.

Dr. HANKS thought fluid might escape into the peritoneal cavity if the tumor were very much distended.

Dr. GILLETTE said, on the other hand, it was astonishing what a tumor would tolerate. He had once tapped with the old-fashioned trocar and canula in a case of advanced phthisis, and the patient had no trouble whatever afterward.

Dr. MUNDÉ spoke of a case in which he had used the aspirator twenty times without trouble. Once a needle broke off and remained in the walls of the cyst.

Dr. DAWSON asked if the existence of adhesions would not have much to do with the result.

Dr. MUNDÉ said the escape of fluid into the peritoneal cavity would not necessarily cause peritonitis. The success of electrolysis had been explained on the supposition of the escape of the contents of the cyst into the peritoneal cavity.

Dr. SKENE said puncture would be safer in case there were old adhesions. Inflammation of the sac, however, was not explained by the escape of fluid.

Dr. **Warren** related a case in which great relief had been obtained by aspiration, and in which, many months afterward, the patient died of pleurisy. The *post mortem* showed that an operation would not have been practicable.

Dr. **Dawson** asked if it was not justifiable to use the hypodermic syringe for diagnosis.

Dr. **Mundé** said he should not hesitate to use it, yet should not be surprised if there were unpleasant results.

Dr. **Gillette** had once had furious peritonitis follow aspiration, and death within forty-eight hours. He did not see why it was not as safe to aspirate the whole contents as a part. He should never hesitate to use the hypodermic syringe.

Dr. **Mundé** mentioned a case which had been tapped and subjected to electrolysis, in which peritonitis followed. An operation was performed, but death occurred on the table.

Dr. **Ward** thought excessive manipulation had sometimes been the cause of inflammation, and that it should not always be attributed to the aspirator.

Dr. **Gillette** asked whether an operation was justifiable during the existence of phthisis.

The general opinion expressed was that it must depend on the extent of the phthisis, and the condition of the patient otherwise.

Dr. **Jenks**, of Detroit, a guest of the society, at the request of the President, expressed his views on the questions under discussion. He had lately had two fatal cases from aspirating ovarian tumors. He thought the operation dangerous unless there was adhesion. He knew of one other case of a unilocular cyst, in which the use of the aspirator was followed by death within a week.

In regard to suppuration and peritonitis, he did not think they should prevent operation for removal of a cyst. He recalled one such case in which he had operated, with the result of bringing down the temperature. The patient progressed favorably till the eleventh day, when she died of exhaustion. The *post mortem* showed no more peritonitis than was found at the operation. He would not have hesitated to operate in a case like Dr. Gillette's.

Dr. **Mundé**, returning to the question of phthisis, said he had declined to perform operations in two cases in consequence of tubercular disease. In one of them he afterward decided to operate, and closed a lacerated cervix. The patient became pregnant.

Dr. Gillette had operated during the existence of phthisis, and should not hesitate to do so again.

Dr. Hunter thought the anæsthetic would be dangerous in advanced phthisis, and suggested that chloroform would be preferable to ether.

Dr. Skene said he would not hesitate to close a lacerated cervix or perinæum during the existence of tuberculosis in the first stage.

Dr. Garrigues thought it must depend on the condition of the patient and the degree of the tubercular disease. He had seen tubercular patients greatly relieved by the removal of an ovarian tumor. He thought the statement found in many works upon ovariotomy, that phthisis contraindicated operation, should certainly be qualified.

Dr. Gillette would be guided much as to the propriety of operating, by the severity of the cough, as coughing after the operation might disturb the wound and pedicle.

Dr. Watts had operated twice on the cervix, with good result, during phthisis. In ovariotomy the question would be, how much phthisis had affected the general health of the patient.

Dr. Hunter mentioned a case of fibroid tumor of the vagina which he had had under observation over three years, and which had only recently begun to increase at all rapidly.

Dr. Hanks related the case of a dispensary patient having laceration of the os uteri with the anterior lip excessively hypertrophied, and projecting forward fully an inch. He swept a scalpel round through the mucous membrane, applied an elastic ligature, and sent the woman home. On the fourth day the hypertrophied part sloughed off, without any hæmorrhage or pain. The fourth week afterward the wound had healed, and he performed the usual operation on the lacerated cervix.

Dr. Hanks also described a case of tracheotomy performed with the aid of two tenacula, as recommended by Dr.

Reid. He found the plan to answer very well. He also gave a sketch of a case of severe facial erysipelas occurring during the puerperal state, with temperature of 105°, in which there was no metritis or peritonitis, the woman ultimately making a good recovery.

Dr. **Jenks** gave his experience with catgut ligatures in ovariotomy. In a case where several ligatures of both catgut and silk were used, he found *post mortem* that more irritation had been caused by the catgut than by the silk. Dr. Routh had reported cases where the knots were found untied.

Dr. **Peaslee** said he had experimented with catgut, but very soon gave it up. He would not now think of using it, unless the part were external or accessible. In the first place, if it were a large vessel, of which the operator wished to be perfectly sure, a firm knot could not be depended on to remain firm. He had found that a knot tied on a stick and placed in water would loosen, at least three times out of five, within twenty-four hours. As to its absorption, there was no doubt it would disappear after a time. He had seen suppuration follow the catgut ligature, but because it was tied too tightly.

Dr. **Harrison** reported a case of fibroid tumor, with dropsy, in which *post mortem* the tumor was found to be detached from the uterus and tightly wedged in the pelvis.

Dr. **Peaslee**, in regard to the question of the nourishment of such a detached tumor, said it was a received fact that it could take place by contact with the peritonæum. He mentioned a case of an ovarian cyst which had entirely lost its pedicle. Five years ago he went into the interior of the State to perform ovariotomy, and found a tumor that had been detected ten years before. After it had grown for about two years it stopped growing entirely for six or eight years, and then began to increase again. After the arrest of growth the woman had had some symptoms attributed to hernia. The tumor had been growing about two years when he operated. The omentum was extensively adherent, and an artery about as large as the brachial had become developed, and divided into a great many large branches, which were firmly attached to the anterior wall of the tumor. The hand could be passed round the tumor, and no pedicle could be felt. The vessels were ligated and the tumor removed. There was no doubt it was ovarian. The ovary on the right side was missing, and a depression existed in the broad ligament, showing, without any doubt, that the pedicle had been twisted round and round. It was not very uncommon to have it twist. All the circulation was not cut off, so the cyst did not die and decompose. Just enough circulation remained to keep it alive, and pressure caused absorption. In the mean time it took its blood from the omentum.

This was the only case of the kind Dr. Peaslee had met with, but they were known to exist.

The principle was, that a cyst or fibroid might derive nourishment from the peritonæum. The stump of the pedicle, after ovariotomy, would attach itself to the peritonæum, even if tightly tied, and no sloughing ordinarily took place.

THE THERAPEUTICAL SOCIETY OF NEW YORK.

The first stated meeting of the Therapeutical Society was held at the rooms of the Academy of Medicine, December 14, 1877, at 8 o'clock P. M. The President, Dr. **Leaming**, made a short address, giving the reasons for organizing the society, and explaining its method of working.

The Secretary announced that the following committees had been formed: On Neurotics, Dr. Seguin, chairman; on Antipyretics, Dr. Jacobi, chairman; on Electro-Therapeutics, Dr. ———, chairman; on Materia Medica, Dr. Squibb, chairman; and on Restoratives, Dr. Flint, chairman.

The Committee on Neurotics, through its secretary, Dr. Billington, offered the following preliminary report:

The Committee on Neurotics, Dr. Seguin acting-chairman, organized December 1st and meeting on the last Saturday of each month, has the following questions before it:

I. The efficacy of a mixture of chloral hydrate and bromides in epilepsy.

Dr. Seguin has used the two salts in the proportion of 1 : 2, giving from sixty to ninety grains of both in a day.

The possible advantages are, less acne and stupidity than follow the use of the bromides alone, with equally great spinal depressant action.

The mixture has been used in a few cases for two months, with good results so far.

II. The efficacy of Squibb's fluid-extract of ergot, or Bonjean's ergotin, in spinal diseases, notably congestion.

The symptoms and diagnosis should be given in each case. Doses and their effects should be carefully noted. The favorable effect of other drugs should be excluded, as well as that of circumstances leading to spontaneous improvement. Bad effects should also be noted.

III. The influence of the bromides, or of hydrobromic acid, given with quinine, in preventing cinchonism. The quantity of bromide should be at least twice that of the quinine.

IV. The use of gloinoin (tri-nitroglycerin) as a substitute for nitrite of amyl. Contributions are requested.[1]

Dr. Squibb, in behalf of the Committee on Materia Medica, read an introductory report on *Jaborandi.* This, the doctor stated, is an Indian name, applied to several Brazilian plants, including some species of *Piper.* The true drug, however, is from the *Pilocarpus Pennatifolius*, and consists of the compound leaf and the accessories. The leaflets which possess the full virtues of the drug are of a uniform, dark-green color. Many specimens in the drug-market contain a preponderance of brown or yellow *dead* leaves, which are nearly worthless. As large quantities of these inferior grades are sold, it is a fair inference that much of the fluid-extract in the market is made from them, which may account for the unsatisfactory results often obtained from these preparations. Unless a fluid-extract of known good quality can be obtained, it is better to employ an infusion, the physician himself selecting the dark-green leaflets, and rejecting those that are yellow or brown.

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[1] The Committee on Restoratives has the following subjects before it:

1. The use of etherized cod-liver oil in cases in which the plain oil is not well borne.
2. Alimentation in disease by enemata of defibrinated bullock's blood.
3. The use of the "pancreatic emulsion" of Dobell & Dufresne.

Members are requested to make observations on one or all of these topics, and to present preliminary reports at the meeting of the third Saturday evening of February, or send them to the secretary of the committee, Dr. E. Darwin Hudson, Jr. Observations on these points by the society at large are also solicited.

Five specimens of the drug were exhibited, showing different grades; the wholesale prices ranging from sixteen to fifty cents per pound, and the values for medicinal use bearing about the same proportion.

There is no standard formula for the preparation of the fluid-extract—the form in which the drug is most employed—and therefore each manufacturer selects his own method. From good material a good fluid-extract is easily made by exhausting the powdered drug with a mixture of one-third stronger alcohol and two-thirds water, so that each minim will represent a grain, the extraction being made by repercolation and without heat. (A sample thus made, and called fluid-extract of pilocarpus, was exhibited).

The active principle has been isolated, and is an alkaloid. It is called pilocarpine, or, properly, pilocarpia. It is a viscous or semi-solid, unmanageable substance, slightly soluble in water, and freely soluble in chloroform, ether, and alcohol. Its salts with organic acids are uncrystallizable, but with nitric, sulphuric, and hydrochloric acids, are crystallizable, and soluble in water in almost any proportion.

The hydrochlorate and the nitrate are in common use. These are sold at the same price by the importers (thirty-five to forty cents a grain), but the hydrochlorate is the more efficient, as the relative amount of acid in the two salts is as thirty-six to fifty-four, the difference being made up by the base, which alone is active.

The salts are well adapted for hypodermic use. A convenient solution for this purpose is one which contains one part in thirty by weight, or about fifteen grains to the fluid-ounce. To prevent the formation of microscopic growths in the solution, about half a grain of salicylic acid should be added to each ounce. A convenient formula would be as follows:

Weigh into a counterbalanced vial, of pilocarpium hydrochlorate, one part; distilled water, twenty-four parts; cold saturated solution of salicylic acid in water, five parts.

(A specimen of such a solution was exhibited; also one of the undissolved hydrochlorate of pilocarpia.)

Dr. A. Jacobi, chairman of Committee on Antipyretics read the following report on Pilocarpia:

This report is based upon more than sixty carefully-observed administrations of the alkaloid of pilocarpus jaborandi. In most of the cases the application was made several times, the dose being one-third of a grain of the drug dissolved in fifty times the amount of distilled water; in a few a larger amount was injected. A small number of cases were treated with administrations by mouth, and by rectum. The large majority of experiments were made in cases of disease; some were undertaken on relatively healthy persons, to ascertain the effect of pilocarpium under totally or nearly physiological circumstances. For very careful observations and registrations this report is indebted to my house physicians in the First Medical Division of Bellevue Hospital, where the first observations were made—Drs. Gorton and Sanders; Dr. Canfield, house physician in the Fourth Medical Division; to my house physicians in the Mount Sinai Hospital, Dr. Davidson, and in the German Hospital, Dr. Muhlfeld. For valuable communications, to Drs. John C. Peters, Wm. M. Polk, G. Frauenstein, R. Hesse, H. G. Piffard, and A. H. Smith. From the numerous observations, the following are selected as specimens:

Case I. *Chronic Bright's; Tertiary Syphilis; Cerebral Tumor* (?).[1]—First injection given June 19, 1877; ♏. xv. of a 2 per cent. solution, in left arm. The first signs of perspiration appeared within five minutes after the giving of the drug, no means for definitely fixing the time being taken. Whether perspiration preceded the salivation, or *vice versa*, cannot be stated. The sweating was very profuse; appeared first on the temporal region of the right side, spread rapidly to the rest of the body, and was especially abundant over the right half. Salivation was slight, the saliva, however, being sensibly increased in quantity. Some lachrymation, especially of right eye. Slight flushing of the face, equal on both sides, preceded the appearance of the diaphoresis. While the sweating was at its height she complained of being chilly. No effect on pupils noticed.

The duration of action of the drug cannot, in this instance, be accurately stated, but it probably did not extend over two hours.

Following its external action, or rather the action on the secretory apparatus of the skin, etc., patient roused sufficiently, from the semi-comatose state in which she had been at the time of the injection, to comprehend what was transpiring about her, conversed a little, smiled—in fact, was perfectly conscious. This lasted for but a brief period, when patient again relapsed into her previous semi-comatose condition.

Effects noticed: 1. Slight flushing of face; 2. Perspiration copious; salivation scanty; 3. Lachrymation, small in amount; 4. Chilly feeling; 5. Rousing of patient from her semi-comatose state. Beginning of effect, about five minutes; duration of effect, about two hours.

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[1] Great œdema and anæmia, very dry skin, small amount of urine, cerebral symptoms, finally semi-coma, ending in complete coma, without preceding convulsions, and death.

Second injection on same patient, June 20th; ♏. xiv., in left arm. Pulse, 122; perspiration, 16; pupils slightly dilated.

2 min.	45 sec.	Slight salivation.
3	30	Perspiration on upper lip.
5	..	Body moist.
5	20	Perspiration on chin; some lachrymation.
6	05	Copious perspiration on forehead, arm, and chest.
7	30	Pupils unchanged.
8	..	Salivation somewhat increased.
8	30	Large beads of perspiration on forehead.
9	30	Pulse, 122; respiration, 18.
14	30	Nausea.
15	30	Feels as if about to vomit; pulse, 108; respiration, 18.
25	..	Seeming increase in nasal secretion.
32	..	Pulse, 110; respiration, 16.
38	..	Salivation and perspiration decreasing.
1 hour, 17 min.		Salivation, perspiration, lachrymation, etc., stopped.

Perspiration first appeared on the right side, probably at right temporal region, and was most abundant throughout on the right half of the body. Slight flushing of the face preceded the secretory action of the drug. No effect on pupils. Caused some sickness at the stomach, but no vomiting.

As in the first injection, patient seemed brighter after the effects of the drug were well under way, rousing from her semi-comatose state and noting things *about* her.

Third injection on same patient, June 21st; ♏. xv., in right arm. Complete coma at the time of giving the drug. Respiration, 36; pulse, 78 (?); temperature, 103¼°. Moribund.

3 min.	12 sec.	Perspiration on left side of upper lip.
4	20	Slight lachrymation and salivation.
4	30	Died.

No flushing of the face preceded the external action of the drug.

CASE II. *Chronic Bright's Disease.*—Very dry skin, great general anasarca, scanty urine, slight headache. Patient remained in the hospital several weeks, and went out much improved.

First injection, June 19, 1877; ♏. xvi. of 2 per cent. solution, in left arm. The time of first appearance of the perspiration was not accurately noted, but it certainly occurred within five minutes after the administration of the pilocarpium. Perspiration first appeared on the body, then on the forehead, and was soon very copious over the entire body, being most abundant on the right side. Salivation appeared a few minutes after the diaphoresis began, but was not very copious. Soon after the injection, and before the appearance of the perspiration, patient's face became flushed, the flushing being about equal on the two sides. The first sensation felt, occurring coincident with the flushing of the face, was a pleasant feeling of warmth. This, however, was but transient, and was followed by a gradually increasing sense of coolness, finally giving way to a positive feeling of chilliness, never, however, amounting to absolute coldness.

The maximum of the effect was gradually reached, and as gradually declined, the whole effect passing off in about two to two and a half hours.

Following the cessation of the external manifestations of the drug, the patient fell into a gentle slumber, waking up much refreshed after an hour, and expressing himself as feeling unusually good.

None but the cutaneous and salivary secretions seem to have been affected by this injection. Patient suffered from no ill effects attributable to the drug.

Effects noticed: 1. Flushing of face and sense of warmth; 2. Perspiration copious, with sense of coolness followed by chilliness; 3. Salivation slight; 4. Sleep. Beginning of action, about five minutes; duration of action, between two and two and a half hours.

Second injection, June 20th; ♏. xvi., in left arm.

2 min.	30 sec.	Perspiration began in right axilla.
3	30	Spread to right side.
4	..	Pupils began to dilate.
5	..	Began to feel cold.
5	15	Perspiration on forehead.
6	..	Slight salivation; pupils about half dilated.
7	..	Pretty copious perspiration on body.
7	30	Especially cool about back and sides.
8	..	Free perspiration on forehead.
9	..	Pulse, 72; respiration, 23.
9	30	Perspiration very copious, especially at nape of neck.
10	30	Great beads of sweat on forehead.
11	..	Free salivation.
55	..	Pulse, 58; respiration, 23.
60	..	Salivation and perspiration diminishing simultaneously.
2 hours 18 min.		Salivation and perspiration ceased.

After the perspiration stopped patient felt comfortable and slept quietly for about an hour. Perspiration first appeared on the right side, and was more abundant and copious throughout on the right than on the left half of the body. Marked flushing of the face preceded the external manifestations of the action of the drug. Felt very cool after a while—about when the action had reached its maximum—and was forced to cover himself with thick blankets before he could get warm.

Experienced no ill effects from the drug.

CASE III.—Male, aged forty years. Height, 5 feet 8 inches; weight, 180 pounds; pulse, 84; temperature in mouth, 99½°; temperature of room, 65°.

At 9.47 P.M. (November 22, 1877), injected under the skin, over the gastrocnemius muscle, 20 minims of a 1 per cent. solution of pilocarpium hydrochlorate; 5 minutes later, injected 10 minims more into the other leg. 9.53, mouth filled with saliva. 9.54, marked sense of fullness in parotid region. 9.57, slight flush of face; ears hot and red. 9.59, perspiration beginning to start on outside of forearms, then on forehead. 10.01, forehead quite moist. 10.06, slight nausea; upper half of body uncomfortably warm, and perspiring moderately. 10.08 to 10.10; during these two minutes, 14.5 cubic centimetres of saliva flowed from the mouth. 10.14, perspiration began to drop from the nose. 10.14 to 10.20; the flow of saliva during six minutes amounted to 29 cubic centimetres. 10.23, pulse, 88; temperature in mouth, 99½°; nausea. 10.30 to 10.33; saliva, 7 cubic centimetres; chin tremulous. 10.35, forehead wet, but perspiration no longer drips from it. 10.40, went to bed; still perspiring moderately over whole body; nausea continues. 11.15, vomited; the perspiration ceased about midnight; the salivation continued somewhat longer.

The following morning there were dryness and stickiness of the mouth, and chewing and swallowing were difficult from lack of saliva. This continued until noon.

No fluid had been taken for three hours previous to the experiment, and none was taken during its progress.

(*To be concluded.*)

Bibliographical and Literary Notes.

ART. I.—*Cyclopædia of the Practice of Medicine.* Edited by Dr. H. VON ZIEMSSEN. Vol. XV. *Diseases of the Kidney.* By Prof. CARL BARTELS, of Kiel, and Prof. WILHELM EBSTEIN, of Göttingen. Translated by REGINALD SOUTHEY, M. D., of London, and ROBERT BERTOLET, M. D., of Philadelphia. ALBERT H. BUCK, M. D., Editor of American Edition. 8vo, pp. xxii.–796.

THE fifteenth volume of the "Cyclopædia" aims to comprise a complete treatise on the diseases of the kidneys, and consequently embraces an extensive range of topics, together with the discussion of as many intricate questions as can well relate to any one class of affections. The work is assigned to two authors: Bartels writes upon the general symptoms of renal diseases and the diffuse affections of the kidneys, and Ebstein's task is that of writing upon the affections of the ureter, those of the pelves of the kidneys, and perinephritic diseases, including renal gravel or nephrolithiasis, and the suppurative diseases. Both authors contribute an article on amyloid degeneration.

We need not attempt to institute a comparison between the merits of the two portions of the work, for both authors describe, with much clearness and considerable depth, the several subjects respectively assigned them. Ebstein is somewhat less voluminous in his way of putting things than Bartels, but in other respects there is little difference in the writers. Bartels enters quite extensively into the discussion of many pathological questions, under the head of "The General Symptoms of Renal Disorders." Thus, the nature of dropsy, albuminuria, uræmia, and the like, is thoroughly discussed, and recently-advanced theories are analyzed; and the author arrives at his conclusions, which, if not absolutely true in every instance, and beyond controversy, are at least reasonable. In a work of this character, we think a special section should be devoted to the chemical and microscopical examination of the urine. These examinations are incidentally alluded to, of course, under the head of "General Symptoms," but the details of many of the tests are lacking.

We have been very much interested in the perusal of Bartels's exhaustive discussion of uræmia, and especially in his keen manner of analyzing the vast amount of material out of which we are to form an opinion. He seems to have made use of all the experiments of much value which have exerted an influence in forming the numerous theories of the past, although, in some instances, he makes them serve a different purpose from that intended by their originators—at least he interprets their import differently. The conclusion arrived at by the author in regard to the factor which underlies the uræmic symptoms is adverse to the theory of Frerichs—namely, that the urea is converted into carbonate of ammonia, and that its presence in the blood induces the convulsive attack; and also adverse to that of Franke, who entertains the view that œdema of the brain is an essential condition, thereby preventing a proper supply of arterial blood to the brain. Bartels is inclined to the belief that the œdematous condition of the brain is more likely to be the result of the convulsive attack than to act in a causative relation. We have studied the author somewhat closely through this section, with a view to giving our readers his explanation of the import of the numerous experiments extant and of clinical observation. The field, however, is so extensive, that we are obliged to content ourselves with giving the author's opinion without his explanation; and here we may say that, with all the light which has been thrown upon the subject, we are left in nearly as intense darkness as we were twenty years ago.

"My own experience gathered at the bedside, as well as the observations I have instituted, has brought me to the opinion that what we call uræmic symptoms, and encounter in renal disease, are not always brought about in the same way, and do not admit of being explained by one and the same cause. *I only consider this much established, that the symptoms are all caused by some disorder of the urinary secretion, and that the title of uræmia is rightfully attached to them*" (p. 139).

The author evidently is of the opinion that the retention of urea in the blood in some way exerts a poisonous influence on the brain, yet he seems, after all, to possess some doubts as to whether or not it is the sole factor in inducing the uræmic symptoms. After relating the experiments of Jacobsen on page 130, he says:

"From these observations, it follows *that the overloading of the blood with urea is certainly not, in every instance, the cause of uræmic symptoms.*"

"Convinced, as I have been, that these symptoms can be produced through a retention of the specific constituents of the urine—the dross or waste derived from the decomposition of nitrogenous substances—in the system, I have directed my attention to ascertain whether any at all constant relation between the diminution of excretion of these substances and the advent of uræmic symptoms could be shown to exist. In these efforts I was obliged to restrict myself to the consideration of only one element—namely, urea; the reasons for this being, first, that it stood foremost among the specific elements of the urine by its quantity; and then because, by the amount of it present, we estimate upon well-established physiological principles the waste of the nitrogenous substances taking place in the body in health; whereas we are totally ignorant of the ratio borne by the non-crystallizable urinary substances toward the varying energy of the capillary interchanges; and, lastly, because we have a mode of quantitatively estimating this particular nitrogenous constituent of the urine (the urea), which presents no practical difficulties in its application" (p. 140).

The author next states the varying circumstances which tend to influence the gross quantity of urea in normal urine, and proceeds to cite a few cases, with the results of autopsies. On page 143 he states:

"It appears, from the above observations, that the outbreak of uræmic convulsions was in every instance preceded by a diminution in the excretion of urine, and especially of the urea, to a figure far below the ordinary mean average; the term *uræmic*, therefore, is correctly employed to denominate these symptoms. But the facts help us no further; they fail to explain why it is that uræmic symptoms are not forthcoming in cases conditioned under apparently quite identical circumstances. Repeatedly I have watched cases of contracted kidneys, with consecutive hypertrophy of the left ventricle, and with the daily excretion of the urine and urea reduced to as low an ebb as in the cases I have narrated, advance to a fatal issue without the occurrence of convulsions or protracted coma."

It has been shown by Bernard and Barreswil, and by Robin,[1] that, so long as gastric and intestinal irritation does not occur (induced by the conversion of the urinary products into carbonate of ammonia), so as to prevent the elimination of urea through the alimentary canal, uræmic symptoms do not take place; when elimination cannot take place, then the convulsions and coma soon make their appearance.

Bartels thinks the mechanism of the epileptiform convulsion and the uræmic coma may be explained upon a variety of hypotheses, and those very different in nature; among them is one that it may be effected through the agency of the elevated temperature sometimes induced by the blood-poison. Anything which irritates the peripheral nerves, whether it be an arterial spasm brought about through the vaso-motor centre or otherwise, may cause the seizure.

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[1] "A Text-Book of Human Physiology," by A. Flint, Jr., M. D., 1876.

Under the head of "The Diffuse Diseases of the Kidneys," following the "Historical Notice," Bartels describes separately "Active or Acute Hyperæmia;" "Passive or Venous Congestive Hyperæmia;" "Ischæmia of the Kidneys and its Results—the Choleraic Affection of the Kidneys;" "Acute Parenchymatous Nephritis," and the same occurring in pregnancy; "Chronic Parenchymatous Nephritis;" "Renal Cirrhosis;" and "Amyloid Degeneration."

The chronic inflammatory affection is what is described by Wilks as the "large white kidney," and by others as the second stage of "Bright's disease." It is stated that this variety sometimes follows the acute, but not very frequently. It is more frequently seen to follow the acute nephritis occurring in small-pox and pregnancy than in the same condition occurring as a complication of some other affection. A cirrhotic stage of the chronic inflammation is not recognized by the author, cirrhosis of the kidney being a condition entirely independent. This, it will be remembered, is at variance with the view of Grainger-Stewart, who, while he recognizes cirrhosis of the kidney as a distinct affection, claims that a cirrhotic stage occurs in the inflammatory variety of Bright's disease, if the process continues to progress and the patient lives long enough. The last-named author divides the destructive process into the inflammatory, the fatty, and the cirrhotic stage. Bartels treats this subject with a great deal of care, yet we incline to dissent from his classification, and agree more nearly with that of Stewart. The treatment the author adopts for all the varieties of the inflammatory diseases of the kidneys is principally sweating. He thinks it is possible to effect cures or prolong life in very many of even the chronic cases. The patient should be kept in bed, and the drastic cathartics and other depressing measures avoided. Acute atrophy of the kidney is not mentioned. The translator of Bartels's portion of the work makes a few notes, which are of some value.

We predict that this volume will be sought after by the profession, and that it will occupy a prominent place among the standard authorities upon the subjects of which it treats. The translation and printing are very good.

ART. II.—*A Compendium of Diagnosis in Pathological Anatomy, with Directions for making Post-Mortem Examinations.* By Dr. JOHANNES ORTH, First Assistant in Anatomy at the Pathological Institute in Berlin. Translated by FREDERICK CHEEVER SHATTUCK, M. D., and GEORGE KRAUS SABINE, M. D. Revised by REGINALD HEBER FITZ, M. D., Assistant Professor of Pathological Anatomy in Harvard University; with Numerous Additions from Manuscript prepared by the Author. Sole Authorized English Edition. New York: Published by Hurd & Houghton. Boston: H. O. Houghton & Co. Cambridge: The Riverside Press, 1878. Pp. 440.

SCARCELY any other of the associate sciences grouped under the general name of Medicine receives such consistent and uniform neglect in this country, and especially in this city, as Pathology; and yet, the amount of time and attention given it at every university of good standing in Continental Europe would indicate its importance, even to the laity. It is not our province to go fully into the causes of this neglect; but we gladly welcome the present volume as one that may go far toward its removal. It is designed as an aid to the practical worker in pathological anatomy; and, as a most excellent translation of a most excellent original, we are glad to be able to commend it to the attention of all earnest workers in this field. Nothing has recently been published in English on this subject, and nothing so complete as this has ever appeared in this country or in England. While it cannot fail to be of use to the beginner, by reason of the exact rules laid down for the making of autopsies, and the clear and concise descriptions of *post-mortem* appearances, especially *macroscopic* appearances, its usefulness will be especially acknowledged by the man who has already had experience in this line of work as an efficient aid in classifying his knowledge. The claim made in the preface, that a correct translation has been deemed of greater importance than an elegant one, is fully justified by the text. This we say to the credit of the translators. The book is systematically arranged, and preceded by an elaborate table of contents. It gives full details of all the minutiæ of *post-mortem* examinations as taught by Virchow and Rindfleisch, this ground being gone over step by step, and all the pathological changes in the organs and tissues being fully explained—changes both gross and minute being dwelt upon at length.

Unlike most translations, this can fairly claim a superiority over the original, because it is not *merely* a translation. It has been written by Drs. Shattuck and Sabine with the author's coöperation, and many additions of importance have thus been made which will only reach the German student of pathology in the second edition of the original. Besides this, two plates taken from Virchow's "Sections-Technik" have been inserted, which explain and simplify the removal of the sternum and costal cartilages, and the somewhat complicated procedure of opening the heart so as to show the valves and endocardium with the least injury to them. Both of these illustrate points of importance. The book is thus brought fully up to the present time, subjects as new as Cohnheim's researches upon the marrow in progressive pernicious anæmia being explained and discussed. The translators are entitled to our thanks for having given to the profession in this country so valuable a book. We need scarcely add that it is thoroughly practical in all its details and in all its suggestions as to methods, etc.; and, as such, we commend it to the attention of our readers.

ART. III.—*The Science and Art of Surgery. Being a Treatise on Surgical Injuries, Diseases, and Operations.* By JOHN ERIC ERICHSEN, F. R. S., F. R. C. S., Surgeon Extraordinary to Her Majesty the Queen; Member of Council and of the Court of Examiners of the Royal College of Surgeons; Emeritus Professor of Surgery and of Clinical Surgery in University College; Consulting Surgeon to University College Hospital, etc., etc. Revised by the Author from the Seventh and Enlarged English edition. Illustrated with Eight Hundred and Sixty-two Engravings on Wood. In Two Volumes. Pp. 948 and 990. Philadelphia: Henry C. Lea, 1878.

WE are glad to see our old friend—"Erichsen's Surgery"—once more brought up to the level of the day under the supervision of its distinguished author, and adapted by him to the requirements of the profession in this country. It is almost a pity to have so valuable a text-book for students enlarged to two volumes; but it would have been impossible to do justice to modern surgery in smaller compass. Notwithstanding the increase in size, we observe that much old matter has been omitted. The entire work has been thoroughly written up to date, and not merely amended by a few extra chapters. Large additions have been made in the discussion of surgical hygiene and the avoidance of septic disease.

Lister's antiseptic method is fully described (vol. i., pp. 174, 214) and liberally discussed, though the author does not give it an unqualified indorsement. He considers the method still on trial, and would afford every opportunity for arriving at definite conclusions. After a detailed description of Lister's method, Mr. Erichsen says (vol. i., page 221): "That the 'antiseptic treatment' has been of much service in the prevention of the infection of wounds, more especially in old, crowded, and pestilential hospitals, there can be little doubt. We have, however, unfortunately as yet, no definite data by which to judge of the comparative merits of this and other modern methods of treating wounds." Of the use of the catgut ligature he says (vol. i., page 305): "At University College Hospital it has been used on arteries of all sizes, from the femoral downward, and in no case has any unpleasant consequence resulted from its use." In every department the work will be found fully up to the times, especially in that on surgical pathology. American improvements in surgery have received due notice, including Dr. Sayre's plaster-of-Paris treatment of Pott's disease, which is fairly described (vol. ii., page 208) in the chapters on that affection. In the chapter on Anæsthetics we think more emphasis might have been given to the fact that ether, "so far as we can at present judge" (vol. i., page 48), is safer than chloroform. On the preceding page the author says, "That but few fatal accidents have as yet followed the administration of ether, is certain."

A great improvement has been made in the illustrations. One hundred and fifty new ones have been added, and many of the old ones have been redrawn. The author highly appreciates the favor with which his work has been received by

American surgeons, and has endeavored to render his latest edition more than ever worthy of their approval. That he has succeeded admirably, must, we think, be the general opinion. We heartily recommend the work to both student and practitioner. Each volume has its own Index.

ART. IV.—*Transactions of the Association of the Alumni and Officers of the Medical Department of the University of Buffalo for the Years* 1875–'77. 8vo, pp. 147. Buffalo: Hausman & Burrow, 1877.

IF we are to judge by the report of the proceedings of the Alumni Association of the Buffalo College, we may conclude that they have rather spicy times at their reunions, as well as occasions for the advancement of professional acquirements. In the "Transactions" we find that the recorded addresses of the president, and the addresses to the graduates and to the alumni at the commencement exercises of the college, are all very good. Some of the toasts at the banquets are given in outline, and are "rich, rare, and racy." Dr. Fowler Brodnack, of New York, has written poems for each meeting, which are very ingenious and witty, yet they are somewhat lacking in a high degree of poetic excellence, if compared with the productions of some of our poets who have no other vocation.

Of the strictly scientific papers published in this volume, we would mention a good one on "Some Points in the Pathology of Fever," by Dr. Van Peyma, of Buffalo; a very practical one on "Psychological Medicine," by Dr. A. T. Livingston, of Utica, N. Y.; and an excellent paper on "Heredity: its Influence upon the Progress and Welfare of Mankind," by Dr. E. N. Brush, of Buffalo; and would call especial attention to a paper on "Questions relating to Sanitary Science," by Dr. C. H. Richmond, of Livonia, N. Y., read February 23, 1876. The special question discussed in this article is the etiology of leprosy, or the relations between hæmaturia and chyluria on the one hand, and the elephantoid diseases on the other. The author does not claim to have investigated the subject experimentally, but gathers from different writers that these several affections are due to *filariæ*, or minute blood-worms. Lewis, of Calcutta, who has written a brochure on this subject, is especially quoted, and the views so ably put by Dr. Richmond are certainly worthy of investigation. In a sanitary view the question is highly important. Quincke, in "Ziemssen's Cyclopædia,"[1] makes favorable mention of the same explanation of the occurrence of the above-named conditions.

Other papers contained in the volume are interesting.

ART. V.—*Spinal Disease and Spinal Curvature. Their Treatment by Suspension and the Use of the Plaster-of-Paris Bandage.* By LEWIS A. SAYRE, M. D., Professor of Orthopœdic Surgery in Bellevue Hospital Medical College, etc., etc. London: Smith, Elder & Co., 1877. Philadelphia: J. B. Lippincott, 1878.

THIS volume is dedicated to the British physicians and surgeons who received the author so cordially last summer, and who appear to have been deeply impressed with his methods of treating spinal disease. It contains much that may be found in his larger work on orthopœdic surgery, but is enriched by a number of new and striking cases, accompanied by a series of photographic representations of the process of suspending the patient and applying the bandage. From the photographs alone, a foreigner entirely ignorant of the language in which the book is written might gain a good practical knowledge of the method recommended.

The latter part of the work contains an essay on the application of the plaster method to lateral curvature of the spine, or, as the author prefers to call it, rotary-lateral curvature. This embodies the results obtained and opinions arrived at by the author since the publication of the larger work referred to. Here, again, Dr. Sayre supports his views by a series of successful cases, accompanied by photographs and other illustrations, and, in many instances, by the full name and address of the patient and the attending physician.

There is one great merit in all that Prof. Sayre teaches about the treatment of disease of the spine: his methods are so exceedingly simple, and involve so little expense, that any practitioner, who will take the trouble to do so, may settle for himself the question of their efficacy.

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[1] Vol. vi., p. 542.

ART. VI.—*Some General Ideas concerning Medical Reform.* By DAVID HUNT, M. D. 12mo, pp. 50. Boston: A. Williams & Co. New York: William Wood & Co., 1877.

THE author of this little work, by tracing some of the salient points in the history of medicine, is enabled to point out many faults in the system of medical education, and the principles which govern medical bodies. He has some crude ideas in regard to reforms which might be instituted, yet, as a whole, the work is more critical in character than suggestive. The author thinks, and perhaps very justly, that it is vastly more important to teach the student to investigate and observe than to over-tax his memory with the unlimited medical literature of the day.

The book is very well written, every page evidently being the work of a thorough student. The methods of illustration are, in some instances, without analogy, inasmuch as the illustration itself is entirely foreign to the subject proper. Although we may be in accord with the author in the opinion that a protective tariff is detrimental to our best interests as a nation, we must say we fail to recognize the appropriateness of the expression of such opinion in this connection. Moreover, we fail to see why an exercise of Christian faith has a tendency to restrict scientific investigation in medicine. We should be glad, however, to have the book extensively read, as it will tend to awaken an interest in the question of medical reform, and advance the suggestion of methods.

ART. VII.—*Outlines of Modern Chemistry, Organic, based in part upon Rich's Manuel de Chimie.* By C. GILBERT WHEELER, Professor of Chemistry in the University of Chicago. Pp. 231. Chicago: Jansen, McClurg & Co., 1877.

THE author says, in his Preface, that it would have been easier to prepare a larger work. This we can easily believe.

The student for whom these outlines are intended is presumed to be familiar with organic chemistry, and the general principles that underlie modern chemical philosophy. The merit of the work seems to us to consist in the judicious selection of such material as would facilitate the acquirement of a sound basis for future study. It was not the intention of the author to make a complete analytical manual; therefore only a few analytical tests are given, and those only in the case of leading compounds. The medical student would do well to make himself acquainted with the contents of this little volume, even though he should be unable to pursue such studies further.

The centigrade thermometer and the metric system of weights and measures are employed throughout the work, except where it is otherwise stated.

ART. VIII.—*A Guide to Therapeutics and Materia Medica.* By ROBERT FARQUHARSON, M. D., Edinburgh, F. R. C. P., London, Lecturer on Materia Medica at St. Mary's Hospital Medical School, etc. Enlarged, and adapted to the United States Pharmacopœia, by Frank Woodbury, M. D., Member of the Academy of Natural Sciences, Philadelphia, etc. Pp. 410. Philadelphia: Henry C. Lea, 1877.

THE author has attempted to facilitate the study of therapeutics by the introduction of some new features in the work he puts forward as a text-book. One peculiarity is the arrangement in parallel columns of the physiological and therapeutical qualities of drugs—which appears to us rather confusing than the reverse, besides having the fault of leaving many unsightly blanks. To be of much value to the student, the author's plan must be more carefully elaborated. Indeed, there are evidences elsewhere throughout the volume of somewhat hasty preparation. The grouping of remedies is not very satisfactory, and, in consequence, the work appears at first sight less complete than it really is. There is some fault to be found on the score of inaccuracy, which is less excusable in a work of this kind than in almost any other, as it may lead to serious mistakes in prescribing or dispensing. On the whole, we can see no reason for recommending the volume in preference to several others already available, and of which it can hardly be considered a worthy rival.

ART. IX.—*The Morphology of the Skull.* By W. K. PARKER, F. R. S., Hunterian Professor Royal College of Surgeons; and G. T. BETTANY, M. A., B. Sc., Lecturer on Botany in Guy's Hospital Medical School. London: Macmillan & Co., 1877.

THE authors of this work have accomplished a difficult task in developmental anatomy, and one which will be fully appreciated only by the student of comparative embryology. They have given a simple description, accompanied by abundant illustrations, of what they found during an elaborate series of dissections and investigations. Facts, and not theories, are what they endeavor to teach, though they put forward some very rational interpretations of those facts. The field is almost a new one, and to others who are interested in the same studies the work will prove invaluable.

ART. X.—*Fistula in Ano; a Double Case. One treated by the Knife, the other by the Elastic Ligature.* By C. F. MAUNDER, Surgeon to the London Hospital. London: J. & A. Churchill, 1877.

THE ligature in this case caused great pain for 48 hours after application, and the wound made by it healed five weeks after that made by the knife. The author believes that the ligature should be "reserved for those who will on no terms submit to a cutting operation, as well as for others of hæmorrhagic diathesis; also, for certain instances in which, the sinus being very long and its wall thick, severe and somewhat inaccessible bleeding might be expected if the knife were used."

ART. XI.—*A Treatise on Gonorrhœa and Syphilis.* By SILAS DURKEE, M. D., Consulting Surgeon of Boston City Hospital; Fellow of the Massachusetts Medical Society, etc. Sixth Edition, with Eight Colored Illustrations. Philadelphia: Lindsay & Blakiston, 1877.

THERE is not much to be said about this work, except that it belongs to the literature of the past. The only thing modern about it is the date on the title-page.

BOOKS AND PAMPHLETS RECEIVED.—Principles of Rational Therapeutics, commenced as an Inquiry into the Relative Value of Quinine and Arsenic in Ague. By Bholanoth Bose, M. D., London, Her Majesty's Indian Medical Service. London: J. & A. Churchill. Calcutta: Thacker, Spink & Co., 1877.

A New System of Medicine, entitled Recognizant Medicine; or, The State of the Sick. By Bholanoth Bose, M. D., London, Her Majesty's Indian Service. London: J. & A. Churchill, 1877. Pp. 212.

Plastic Splints in Surgery. By Henry O. Marcy, A. M., M. D. Reprinted from the *Boston Medical and Surgical Journal*, June 28, 1877.

Exposition of Facts. By A. Y. P. Garnett, M. D.

On the Nature, Origin, and Prevention of Puerperal Fever. By W. T. Lusk, M. D., Professor of Obstetrics and Diseases of Children in the Bellevue Hospital Medical College. Extracted from the "Transactions of the International Medical Congress," September, 1876.

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Annual Address by the President, Fordyce Barker, M. D., of New York. Reprinted from Volume II., "Gynæcological Transactions," 1877.

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On the Dressing of Stumps. By Louis Bauer, M. D. Reprinted from the *St. Louis Clinical Record*, November and December, 1877.

The Illinois State Medical Register for 1877-'78. Published annually, under the supervision of the Chicago Medico-Historical and Illinois State Medical Societies. D. W. Graham, M. D., Editor. Chicago: W. T. Keever.

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Ovariotomy by Enucleation. By Julius F. Miner, M. D., Professor of Special and Clinical Surgery in the Medical Department of the University of Buffalo. Extracted from the "Transactions of the International Medical Congress," Philadelphia, September, 1876.

Universal Pharmacopœia. By Edward R. Squibb, M. D., of Brooklyn. Extracted from the "Transactions of the International Medical Congress," Philadelphia, September, 1876.

Spinal Irritation in Children as related to True and False Arthropathies. By V. P. Gibney, M. D., of New York.

Third Annual Report of the Executive Committee of the Asylum at Walnut Hill, Hartford, Conn., at their Annual Meeting, October 8, 1877; also Petition to the Legislature.

Twenty-second Annual Report of the Trustees of the State Lunatic Hospital at Northampton, for the Year ending September 30, 1877.

State Hospital for the Insane, Danville, Pa., 1876–'77.

Annual Report of the Pennsylvania Free Dispensary for Skin-Diseases, for the Medical Relief of the Poor affected with Diseases of the Skin.

An Address Introductory to the One Hundred and Twelfth Course of Lectures in the Medical Department of the University of Pennsylvania, delivered October 1, 1877, by William Pepper, A. M., M. D., Professor of Clinical Medicine. Published by order of the Board of Trustees, and at the request of the Medical Class.

Croton Water; its Nature, Properties, and Impurities, with Original Microscopical Drawings of the Organic Deposit. By John Michels. 1878.

Twenty-fifth Annual Announcement of the Medical Department of the University of Vermont and State Agricultural College, Burlington, Vt., for the year 1878.

Case of Unilateral Cerebellar Abscess and Tumors without Persistence of Symptoms. Remarks on Unilateral Disease of the Cerebellum. Other Cases cited. By C. H. Hughes, M. D., late Superintendent and Physician Missouri State Lunatic Asylum. Read before the Association of Superintendents of American Asylums for the Insane, at St. Louis, May 31st, 1877. Reprinted from the *Journal of Mental and Nervous Diseases*, October, 1877.

Reports on the Progress of Medicine.

REPORT ON LARYNGOLOGY.

No. XII.

BY GEORGE M. LEFFERTS, M. D.,

LINICAL PROFESSOR OF LARYNGOSCOPY AND DISEASES OF THE THROAT, COLLEGE OF PHYSICIANS AND SURGEONS; LARYNGOSCOPIC SURGEON TO ST. LUKE'S HOSPITAL, ETC.

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4. Weinberg.—On the Size and Form of the Larynx at Various Ages. *Archiv für klin. Chir.*, Idem, Heft 2.
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1. Dr. Foulis has performed the operation for extirpation of the larynx for the first time in Great Britain. His case is briefly as follows: The patient came under treatment in April, 1876, for a warty-looking growth which projected from under the anterior end of the left vocal cord, and which gave rise to the usual symptoms. No attempt was made to remove it by the mouth, but laryngotomy was performed about one month later, and the growth removed piecemeal. The microscope showed its structure to be that of a papilloma with a very cellular interior.

Four and a half months later, a nodule very much like the original tumor had made its appearance at the old site, and continued to grow steadily. On April 16, 1877, thyrotomy was performed for its removal, and the base cauterized. The microscopic structure of the neoplasm removed at this operation was the same as in the first case, with perhaps more of the round-celled or sarcomatous tissue. The following July the growth had again made its appearance, and in August the patient's breathing had become so much affected as to call for interference. The voice was reduced to a hoarse whisper, and his aspect was anxious. The tumor as seen with the laryngoscope was larger than ever before. It pouted in a reddish rounded mass into the trachea just below the cords, filling nearly the whole of the lumen of the air-tube. The doctor now "felt that it would not be right to attempt any mere excision of the growth in view of the recurrence after the thorough removal and cauterization at the thyrotomy operation. With this the patient was quite in accord, and, when it was proposed to him to have the larynx removed, he, after some hesitation, agreed to have it done, chiefly because of the lingering death which was in prospect, and on the ground that, if an operation for the introduction of a tube into the trachea must be undertaken in order to avert death by suffocation, it might be as well at the same time to remove the diseased and useless larynx, and replace it by an artificial one" (?). On September 10, 1877, the larynx was removed by the usual method (*see* "Report," No. xi.). A novel point in it was the introduction into the end of the trachea, after its separation from the larynx, of a leaden tube curved like a siphon with an India-rubber ring around the end in the trachea, which it thus closely fitted. This curved tube completely answered the purpose of preventing the escape of blood into the trachea, and also of allowing respiration to proceed from a point which was away from the field of operation. The superior cornua of the thyroid cartilage were left *in situ*, as well as half of the arytenoid cartilages, these parts being well out of the area of the disease. Recovery took place after the operation, uninterrupted by any serious accident. Five days after the operation the patient could swallow liquids freely. The last reports are as follows: September 23d (thirteen days after the operation). No fever; patient able to sit up in bed; wound contracting. September 30th.—Progress of the case uninterrupted by any bad symptoms; patient has returned to ordinary diet; is able to be up during the day, and changes the tubes for himself. October 8th.—The wound contracted to the size at which it is desired to keep it. A Gussenbauer's voice apparatus is being moulded to fit it.

(It is very much to be desired that the subsequent developments in the above case shall be placed upon record. What we now lack in the literature of this operation are the results in the so-called successful cases.—*Rep.*)

2. In Dr. Gerdes's case of extirpation of the larynx, the patient had suffered for many years from hoarseness, but only since May, 1876, from dysphagia, and a slight interference with respiration. The laryngoscope showed that an irregular grayish-colored infiltration occupied the right side of the larynx, extending from the vocal cord upward to the level of the edge of the thyroid cartilage; the left side of the larynx was free. Epiglottis normal. In spite of the absence of other characteristic appearances, the infiltration described gave the impression that it was of a malignant nature, and its removal was proposed to the patient, but refused. On the 10th of February following, dyspnœa and dysphagia had reached such a grade that tracheotomy was necessary; great difficulty was found in causing the tube to retain its proper position after introduction, and finally, after many attempts, lasting two to three weeks, it was removed permanently, and the wound allowed to close.

On the 28th of March, 1877, the patient was again seen; the tracheal wound had not entirely closed; the dyspnœa was excessive, and the laryngoscopic examination demonstrated a marked increase in the size of the growth—so much so, that more than one-half of the lumen of the trachea was occupied by it. The operator now determined to lay open the laryngeal cavity, assure himself as to the nature of the neoplasm, and then either remove it by the knife or sharp spoon, or, if it appeared advisable, to extirpate the larynx.

March 30th, the operation of extirpation was performed. The patient was placed in the position advised by Maas, Trendelenburg's canula being used, and the various steps of the operation being followed out as already described in other instances (a detailed account is given in the original article).

The degeneration of the extirpated larynx was even more extensive than was supposed from the laryngoscopic examination. The neoplasm occupied the entire right half of the larynx, extended thence to the left, and formed a large tumor below the vocal cords, altogether reducing the lumen of the larynx to a very narrow slit. The cartilages were in great part involved in the destructive process, presenting in many places the thickness alone of a thin paper, without, however, being perforated at any point. The microscope demonstrated epithelial cancer.

The patient did badly after the operation, and died on the morning of the 3d of August, of collapse (fourth day after the operation).

3. Witte's article, though a very lengthy one, is of great interest, and full of valuable information, while being likewise a *résumé*, to a certain extent, of the work of others, and of the literature of the subject, it will be of use and value as a work of reference. It opens with a consideration of the

statistics of wounds of the larynx as recorded in the surgical histories of the more recent wars. Certain anatomical and physiological observations, referring to the region under consideration, are followed by the division of the whole subject into two great classes with certain sub-sections, as follows: I. Wounds of the larynx the causes of which are internal—*a.* By foreign bodies; *b.* By violent expiration (!); *c.* By hot or caustic solutions. II. Wounds, the causes of which are external: 1. Without lesion of the soft parts covering the larynx—*a.* Laryngeal commotion; *b.* Contusion or crushing with or without fracture; 2. With lesion of the tissues overlying the larynx—*a.* Incised wounds; *b.* Punctured wounds; *c.* Contused wounds; *d.* Gunshot-wounds. This arrangement is closely adhered to in the subsequent pages—the symptomatology, pathological anatomy, diagnosis, course, results, and prognosis, of each class of injury receiving full and careful consideration.

The continuation of the paper in the subsequent issue of the Journal (Heft ii.) consists of twenty-two pages devoted entirely to the subject of treatment, while its conclusion (Heft iii.) comprises the detailed histories of some seventy cases, and a table of the recorded cases, in which an opening into the air-passage was made on account of gunshot injury of the trachea, or of the neighboring parts—in all, thirty cases, with seventeen recoveries and thirteen deaths = 43.33 per cent.

The following conclusions are reached by the author:

1. That laceration of the larynx and trachea is very rare—in battle only five in ten thousand wounds of all classes; in private practice they are more frequent; in the former class almost exclusively by fire-arms; in the latter by cutting instruments.

2. The diagnosis is usually easy; a pathognomonic symptom of a penetrating wound of the air-passages is the escape of air through the opening.

3. The progress is always slow; in extensive lacerations repair is not to be expected under thirty to forty days; not unfrequently alterations in the voice, stenosis of the larynx (very seldom of the trachea), and aërial fistula are ultimate results.

4. The prognosis in incised wounds of the larynx and trachea, with extensive laceration of the soft parts, is much better than in those with but slight laceration, and in punctured wounds. Gunshot-wounds of the larynx appear to allow of a better prognosis than those of the trachea, but in both instances more than one-half of all cases are cured.

5. Severe concussions, contusions with marked disturbance of the voice and respiration, and fractures of the cartilages, are indications for a prophylactic tracheotomy.

6. It is likewise indicated where foreign bodies are lodged in the larynx or trachea.

7. Gunshot-wounds of the larynx and trachea together, punctured wounds in which the laceration of the mucous membrane is probable, incised wounds, with slight involvement of the soft parts, but marked injury to the cartilages, all render the performance of a tracheotomy necessary.

8. In incised wounds with free division of the soft parts, and simple lacerations of the trachea, the operation may be delayed, provided the case can be carefully watched, and it is not necessary to transport it further.

9. Incised wounds of hyo-thyroid membrane may be sewed up after a tracheotomy has been done.

10. In incised wounds of the upper part of the thyroid cartilage, after a tracheotomy, sutures may be used through the cartilage.

11. Gunshot-wounds of the parts in the neighborhood of the larynx, with marked destruction of tissue, indicate a prophylactic tracheotomy:

(*a.*) When interference with either speech or respiration begins to manifest itself.

(*b.*) When secondary hæmorrhage is feared, and the blood can find its way into the air-passages.

(*c.*) When the projectile lies in the vicinity of the larynx, and it is deemed undesirable to remove it.

12. A high tracheotomy is always to be preferred; then section of the cricoid cartilage; if necessary a low tracheotomy can be done. The earlier the operation is performed the less will be the difficulty, and the better the prognosis.

13. When circumstances permit, the operation is to be performed under chloroform.

14. Catheterization of the larynx, as well as compression and scarification, is to be practised in œdema of the glottis.

15. For a time after the operation, Trendelenburg's tampon canula is to be worn, and two at least should be furnished in the *armamentarium* of every sanitary department and field-hospital.

4. In order to obtain the measurements the laryngeal cavity was filled with melted paraffine. Incisions were then made in the anterior median line, at the borders of the cricoid cartilage, and the lower edge of the thyroid, in such a manner as to reach into the paraffine, and give exact signs for measurement. The transverse and sagittal diameters at the level of the lower edge of the thyroid (*e*), and at the upper (*f*) and lower (*g*) borders of the cricoid, were taken, as well as the vertical diameter of the thyroid cartilage (*b*), the cricoid (*d*), and the crico-thyroid membrane (*c*).

DIAMETER.	4 Months to 2½ Years.	2½ Years to 5 Years.	9 to 11 Years.	14 to 15 Years.	20 to 29 Years.	30 to 35 Years.
Transverse......	(*e*) 3.9 mm. (*f*) 4.5 " (*g*) 5.3 "	4.5 6.0 7.0	6.1 (6) 8.4 (9) 9.7 (9.5)	6.8 (7) 8.8 (9.5) 10.8 (12.5)	8.4 (6.5) 13.0 (10.2) 16.0 (12.2)	10.9 (9.7) 14.1 (11.5) 16.2 (14.5)
Sagittal.........	(*e*) 7.0 mm. (*f*) 6.0 " (*g*) 5.0 "	....	10.6 (12) 8.8 (9.5) 9.1 (9.5)	10.8 (11.5) 10.3 (10.5) 10.3 (10.5)	16 (14.7) 14 (12.7) 13 (11.7)	17.5 (15) 16.3 (13.7) 12.6 (11.5)
Vertical........	(*b*).......... (*c*) 3.1 mm. (*d*) 3.5 "	...... 3.3 3.6	8.6 (8) 5.9 (5) 5.2 (5.5)	9.6 (8) 5.8 (6) 6.6 (6)	11.3 (10.5) 9 (7) 9.2 (8)	12.3 (11.5) 7.4 (5.5) 9.5 (9.0)

The figures inclosed in parentheses ( ) signify measurements of the female larynx.

Outline drawings of the above larynges will be found appended to the original articles.

6. Schech, in his valuable contribution to the subject of gummy tumors of the larynx, says that they are the rarest of all the many manifestations of syphilis which affect that organ, and belong to the latest stages of the disease. With the syphiloma, gummy tumor, syphilitic tubercle, or syphilitic infiltration of the larynx, all of which terms are with him indicative of the same lesion, will be found, in the great majority of instances, further specific processes, or at least the sequelæ of earlier lesions, such as cicatrices of the cutaneous surface, of the mucous membranes, diseases of the bones, or, more rarely, of the lymphatic glands; and, in cases where the laryngeal appearances are doubtful, he regards these co-indications of the disease as so important, that, were a gummy tumor or its results pres-

ent in the skin, periosteum, or mucous membranes, he would unhesitatingly pronounce in favor of the gummatous nature of the laryngeal disease.

Though gummy tumors may develop at any point in the larynx, those parts which lie above the level of the glottis appear to be the favorite seat. Schech has seen them on the epiglottis, the vocal cords, and on the posterior wall of the larynx. Mandl has observed them on the epiglottis and false cords; and Türck, Nicholas Duranty, and Norton, below the glottis-level.

They take their origin in the connective tissue and on those parts contiguous to the blood-vessels, in the mucous membrane and sub-mucous tissues.

Their development is either circumscribed or diffuse, upon which depends their size. In the first instance they will vary from the size of the head of a pin to that of a pea, while in the latter they appear as more or less undefined infiltrations, or irregular and tuberculated masses. The round form, when the appearances are localized, is the predominant one, especially upon the false cords or epiglottis, where they may be arranged in rows like a string of pearls. On the vocal cords they may assume diverse forms. The affected cord will either be changed into a swollen, inflamed, and rounded mass, or will show, upon its free edge or middle, spindle-shaped or rounded protuberances which at first sight resemble very strongly a polypus with a broad base.

Their number will vary as well as their size—we may have a single example, we may have many. In one of Schech's cases he counted nine; in one case which Mandl reports eleven could be distinguished. To describe the color and the appearance of a laryngeal gummy tumor is a difficult matter, and the reason does not depend so much upon its seat in the superficial or deep tissues, or its diffuse or circumscribed character, as it does upon the stage of its progress in which it is examined; and just here will probably be found the explanation of the diversity of the descriptions that are given by various authors, of the appearance of the laryngeal gummata. All are correct, but the reader must remember that each represents the appearance of the tumor at some one particular stage of its development, as it was seen at the time of the examination made by each author. Schech states that he knows of no affection of the larynx in which the laryngoscopic picture changes so rapidly and so often, especially when the patient is being energetically treated. One day there may be marked swelling and hyperæmia, a day or two later a purple or bluish-red tumefaction appears—after a short time to disappear and leave behind a normal mucous membrane.

In gummy tumors of the larynx we may distinguish various stages, as well as in like tumors of other parts. The first, usually accompanied by more or less marked inflammatory reaction, is the stage of infiltration; the second, softening; third, resorption; and, fourth, degeneration. To fix accurate limits for these stages, as regards time, is impossible; the stage of degeneration or sloughing of the tumor is usually the shortest, and that of infiltration the longest. The gummatous infiltration can persist without showing the slightest change for months, while on the other hand it may, as it often does, quickly soften and pass into the stage of sloughing.

(In the original paper a careful description of these stages and their laryngoscopic appearances are given.)

The symptoms caused by laryngeal gummata vary according to the seat of the affection and the events to which it gives rise. Ordinarily, disturbance of vocalization is met with, and the more or less marked hoarseness or aphonia may depend on various causes, as, for instance, nodular infiltrations in the vocal cords, or between the arytenoid cartilages; likewise upon œdema of the neighboring tissues, swelling of the ary-epiglottic folds, and paralysis of the adductor or abductor muscles of the vocal cords. If sloughing of the gummatous tumor follow, the ulcerations or their resulting cicatrices, as well as perichondritis and its sequelæ, lead not unfrequently to an incurable aphonia.

Dysphagia and laryngeal irritation are usual complaints. Much less frequently, and only in cases where the infiltration is extensive, or attended by great œdematous swelling, is the respiration affected. Dyspnœa may, as well as the hoarseness and dysphagia, rapidly disappear with the absorption of the gummy tumor; or, on the contrary, they may remain for life, especially when wide-spread sloughing leaves contracting cicatrices of the glottis, distortion of the laryngeal parts, and prolapse of the laryngeal walls, from loss of portions of the cartilages.

From what has been said, it can be seen that the prognosis, in gummy tumors of the larynx, is at best a doubtful one.

Their diagnosis is one of the most difficult in the whole range of the laryngeal pathology. The reason lies in the rapidly-changing appearances of the laryngeal picture, already alluded to. In the stage of infiltration a certain diagnosis is often impossible. The differential diagnosis from the following affections deserves special attention :

Localized hypertrophy of the tissues in the posterior commissure of the larynx; of the vocal cords or false cords, met with in chronic laryngitis.

From the papillary outgrowths, resembling somewhat a gummy tumor, which occur in syphilitic persons as a result of chronic catarrh.

From the laryngeal condylomata, especially from laryngeal abscess; from the so-called laryngeal follicular bubo—an hypertrophied, degenerated, and suppurating follicle; finally, the appearance sometimes seen on the free edge of the epiglottis, and which is caused by the cartilage showing through the mucous membrane, has been confounded with a small, recently-softened, and dirty-white-colored gummy tumor in the same locality.

In urgent cases, potash in large doses is indicated in treatment; in less severe cases, and in those which have received no medication, inunction or inhalation may be recommended. In many cases the potash salt in small doses is sufficient to cause the most brilliant results in a short time—results which Schech cannot ascribe alone to the local treatment of the larynx. Still, the latter must not be omitted, and will, for inflammatory conditions, consist in inhalations and the insufflation or fluid application of astringents, which ought to be frequently changed. General infiltrations and hard nodulations are best treated by penciling them with diluted tincture of iodine.

The treatment of ulcers, œdema, abscesses, perichondritis, pareses, and cicatrices, is to be conducted on general principles.

A very good chromo-lithographic plate appears with the article illustrating the following appearances: 1. A softened and superficially ulcerated gummy tumor of the posterior laryngeal wall; 2, 3, 4. A gummy tumor of the right vocal cord, in the stages of infiltration, softening, and slough; 5. Numerous softened gummata of the epiglottis, and recent one of the left vocal cord; 6. The same in the stage of absorption.

7. We are accustomed to consider tracheotomy in tubercular laryngitis simply as a possible means of prolonging life for a short period. Dr. Seckowiski, however, is of a different opinion. He has operated twice for tuberculosis of the larynx, and one of the cases, on whom the operation was performed seven years ago, is still alive, while the other lived for three years. *Post-mortem* examination of the latter showed well-advanced phthisis. The one still living was attacked with severe dyspnœa immediately after her return from a long journey. The writer resorted immediately to tracheotomy, when, after the introduction of the canula,

his patient fell into a natural sleep, which continued for forty-eight hours. Under general treatment her strength was regained, and her cough left her, but she continued to wear the canula most of the time for two years—that is, until laryngoscopic examination showed that the former morbid condition had left behind only a thickening of the vocal cords. Two years later there was still marked dullness on percussion over the apex of the right lung. Since that time she has never been examined, but the writer often sees her in an apparently well-nourished condition. He expresses the opinion that the opening in the trachea was not only of temporary benefit, but that it prevented the extension of tuberculosis. He considers it necessary that the opening of the glottis should be sufficiently large to allow the easy expectoration of purulent secretion from the lungs, as well as the entrance of plenty of air. He therefore believes tracheotomy to be indicated in all contractions of the larynx, particularly in tubercular patients, for it saves the larynx as well as the lungs. It would not seem to be indicated in those cases in which the lungs are more affected than is the larynx.

Apropos of the subject of tubercular laryngitis, the following plan of treatment, as followed in the Hospital of the University of Pennsylvania, is given in the same journal as the above: The local applications of pure nitric acid, or of strong solutions of nitrate of silver, are considered to be of great value. For the œdema, astringent solutions, such as the sulphate of zinc, copper, or alum, may be recommended. Gargles and inhalations can be used for the cough. Inhalations of steam-vapor of hops or conium are sometimes successful as palliatives. Counter-irritation may be applied externally to the larynx in the shape of small blisters, to relieve the sense of fullness. Lozenges of krameria, hæmatoxylon, or tannic acid, are prescribed. In desperate cases tracheotomy must be performed (*see* above), and a metal tube worn, thus putting the much-irritated larynx at rest.

12. The operation of sub-hyoidean pharyngotomy has been recently performed by Burow for the removal of a sarcomatous tumor of the laryngeal face of the epiglottis. Twice within eight months the tumor had been removed by the mouth, and on both occasions had speedily recurred. Tracheotomy had been rendered necessary on account of dyspnœa, in spite of the two former operations. Through the tracheal wound, and at the time of making it, the tumor was partially removed for the third time. Finally, the *laryngotomie soushyoïdienne de Malgaigne* was performed conformably to the precepts of Langenbeck, Trendelenburg's canula being used, and the tumor cut away with scissors, and the base scraped with the *curette*. One and a half year later the patient was seen and the cure confirmed. The above operation has now been practised eight times—three for tumors of the epiglottis (Prat. Debrou, Burow), twice for tumors of the pharynx (Langenbeck, Rosenbach), once for a polypus of the larynx (Follin), once for a foreign body (Lefferts), and once for a tumor of the ary-epiglottic ligament. In these eight operations there have been two deaths, Langenbeck and Debrou; Rosenbach and Burow have used the tampon canula, and performed an early tracheotomy.

14. Beschoener contributes the history of a case of cystic tumor of the epiglottis, together with observations on the pathological nature of the affection, its courses, treatment, etc. He has collected statistics of 693 cases of laryngeal growth from various authors, and has found that, out of this number, forty-five were of a cystic character (six per cent.). In fourteen cases the cyst was located upon the epiglottis.

31. The third of Dr. Mackenzie's excellent lectures on diseases of the nose is devoted to the subject of epistaxis. It contains nothing new, perhaps, but is of interest to the reader on account of the clearness and

terseness with which the affection in question receives a thorough consideration, and for the value of its rich list of references—an index of much painstaking work in its preparation.

32. Ganghofner's paper is based upon the histories of several ordinary cases of hypertrophy of the so-called pharyngeal tonsil, and their successful treatment by the ordinary means—nitrate of silver, galvano-cautery. The critical remarks which follow contain, like the cases, nothing new or specially interesting.

Rhinoscopy

33. Zaufal's lectures, although mainly confined to directions for the proper use of the various instruments—including several devised by him—for examining the nasal passages specially from the front (anterior rhinoscopy), are full of valuable information, and the subject is so carefully and fully considered that the article will repay a thorough study. The first lecture deals with the historical details of the question—an abstract and thorough exposition of the work, ideas, and methods of others than himself, who have made a special study of the parts, as well as a comparison of the practical worth of the many different methods of examination. In the second lecture we find a description of the nasal specula, sounds, forceps, nasal spatula, dilating specula, and, finally, directions for their use. A lithographic plate accompanies the text.

Treat of Ozæna

35. At the recent International Medical Congress at Geneva, the reporter upon this question was Dr. Ronge, of Lausanne. His conclusions were as follows:

1. Ozæna, a special fetidity of the air expired by the nose, results from suppuration of the nasal fossæ or their annexes, which are—the frontal sinus, the ethmoid cells, the sphenoidal sinus, the maxillary sinus.

2. The point of departure for this suppuration always appears to be an alteration of the bones of the nasal fossæ or their annexes.

3. The degree of fetidity of the nasal breath is determined by the extent of the osseous lesion; the greater this is, the more severe the ozæna.

4. Apart from the osseous lesion, the stagnation of pus in the sinus, from which it can only escape by drops, contributes to the production of ozæna.

5. When the cause of the ozæna is not found in an alteration of the walls of the nasal cavity, the sinus and the cells of the ethmoid must be examined.

6. The local treatment of ozæna is as follows:

(*a*.) Cleansing of the nasal fossæ by means of douches and frequently-repeated irrigation. The liquid employed varies according to the indications.

(*b*.) Insufflation of astringent, caustic, or disinfecting powders.

(*c*.) Cauterization with solid, liquid, or pulverulent chemical caustics. Employment of the galvano-cautery.

(*d*.) Scraping the ulcerations, extraction of sequestra, drainage of the sinus. To fulfill this indication, it is necessary to detach the nose by the sub-labial process, which permits direct exploration of the nasal fossæ, extirpation of the necrosed parts, and opening the sinus. This procedure leaves no apparent cicatrix and no deformity.

37. Delstanche, with Lucae, calls attention to the intimate connection that exists between diseases of the nose and ear, and strongly advises, in all cases of deafness, that the former organ shall be carefully examined and thoroughly treated. Nasal polypi may exist, he states, without giving rise to the slightest symptom to indicate their presence; and, further, that they are a frequent cause of more or less complete abolition of the sense of smell. His further statements, *à propos* of nasal polypi, contain nothing that is new. In the nasal cavities he has only met with the mucous polypus (about forty cases), and has found that they most frequently take their

origin from the turbinated bones or the spaces (meati) between them, specially the middle and inferior. In some instances they sprung from the roof of the nares, and in one female from the septum nasi. Certain directions for the proper examination of the nares, and a description of the instruments used, complete the article.

38. Dr. Hartmann, of Berlin, recommends the use of Politzer's method for distention of the middle ear, in the treatment of acute nasal catarrh. By the compression of the air in the nasal cavities, the collected secretion in the frontal sinuses and other cavities opening into the nasal fossæ is forced out, and the pains and other disagreeable sensations in the head are thereby greatly relieved. In order to prevent any undesirable effects on the middle ear, the external auditory canals should be closed with the fingers, whereby a too forcible driving outward of the drums is prevented. In non-syphilitic ozæna, Dr. Hartmann believes ulceration of the mucous membrane to be very rare, the bad smell being dependent on decomposition of retained secretion. He also believes that the great dilatation of the nasal cavity, which is very frequently found on one or both sides in cases of ozæna, renders the removal of the secretion difficult, and favors its stagnation. Where douches or injections cannot be used, he recommends the use of a small brush, fastened at the end of a flexible wire, to remove the tenacious secretion.

39, 40, 41. All of these authors have found that, in spite of the greatest care, evil effects to the ear have followed the use of the nasal douche; Zaufal and Fränkel, simple otitis media; Schalle, the penetration of a portion of a hard-rubber syringe through the Eustachian tube into the middle ear, perforation of the drum following, through which the foreign body was removed. All three, however, consider that the use of the nasal douche is a necessity, and give certain new directions, in addition to the already existing rules for its employment, in order that the danger to the ears may be still further lessened. Schalle recommends the use of glass syringes. Zaufal presses the soft palate upward toward the openings of the Eustachian tubes by means of the fingers in the mouth, in such a manner that they are thoroughly closed. (He has lately introduced an instrument for this purpose, to replace the fingers of the surgeon. *Prager med. Wochensch.*, No. 28, 1877.) Fränkel requires the patient, as long as the fluid is passing through his nose, to phonate the vowel-sound *u* in order to facilitate the closure of the mouths of the Eustachian tubes.

42. Dr. Foulis fully corroborates the statements made by Michel as to the admirable results which follow the use of the actual cautery in granular and nodular thickenings of the mucous membrane of the pharynx, and says that not only in this affection, but also in enlarged tonsils (chronic), a rapid and effectual change for the better may be confidently anticipated from its employment. In private practice he uses a galvano-cautery, but in the dispensary simple cautery-irons, which are heated in the fire and applied forthwith to the throats of the patients. These cautery-irons are made of thick wire, with a tapering bulb at one end, and a hook for carrying-purposes at the other. If the iron be applied at a black or very dull-red heat, the patients, as a rule, do not object to it. Each thickened nodule should be separately cauterized. Dr. Riesenfeld uses a sort of knife-shaped cautery, with which he strokes the surface of the pharynx (*see* Report No. XI., abst. 36). Foulis regards this application as destructive of the sound as well as of the diseased mucous membrane, and therefore unnecessarily severe.

44. In the pathological report of Dr. Osler, contributed to the *Canada Medical and Surgical Journal*, a case of chronic phthisis is recorded, in which there were miliary tubercles in lungs and pharynx. The upper lobes of the lungs were riddled with communicating cavities, one of which,

the size of a small egg, was filled with a clear, somewhat viscid, jelly-like material, numerous tubercles, and caseous nodules in the lower parts of the pharynx. Scattered over the posterior and lateral walls were numerous small, firm granulations, which, on examination, proved to be miliary tubercles. They were confined to the pharynx. There was no ulceration, and the larynx was not involved. With the exception of two suspicious spots in the cortex of the right kidney, the other organs were unaffected. In another case of chronic phthisis the same condition of the pharynx was observed, and without ulceration.

Dr. Osler remarks that these cases are of interest as showing the existence of extensive miliary tuberculosis in the pharynx without ulceration, and without involvement of the larynx. The condition is by no means common in phthisis. Attention has recently been directed to the subject in an able article by Fränkel ("Ueber die Miliartuberculose des Pharynx"). —*Berliner klin. Wochenschrift*, Nos. 46 and 47, 1876.

56. The local application of a saturated solution of nitrate of silver in glycerine once in ten days has been recommended. The theory is, that an acute inflammation has a tendency to get well, whereas a chronic inflammation has no such tendency. The object is, to substitute an acute for a chronic inflammation, and the inflammation caused by nitrate of silver recovers much quicker than that caused by most of the other caustics. Then use a spray or gargle of common salt-water three or four times a day. Occasionally an antiseptic should be added, and the best is said to be oil of cinnamon, wintergreen, pepper, etc. These oils all contain carbolic acid. Twenty drops of the oil of cinnamon added to a carbolic-acid solution destroys the smell and rather increases its efficacy; certainly does not detract from it.

It is likewise maintained that enlargement of the bronchial glands is secondary to irritation in the throat; hence the possibility of such sore-throats becoming the starting-point of tuberculous development in the lungs must always be taken into consideration. It is also stated that, in a majority of cases in which enlargement of the bronchial glands was found at *post mortem*, it would also be found that the patient had suffered from catarrh of the nose when alive.

57. Insomuch as the operation of extirpation of the larynx has been placed upon the list of justifiable operations in cases of early-recognized cancer of the organ, Reyher recommends, in instances where the endoscopic diagnosis is incomplete or unsatisfactory, an explorative laryngotomy. The possible dangers of the operation are easily avoided. Destruction of the phonetic powers seldom occurs. If, after the larynx is opened, no cancer is found, an opportunity is afforded for the thorough destruction of any morbid tissue. A case in point is given, in which the laryngotomy and a microscopic examination demonstrated an ulcerated neoplasm below the vocal cords to be a sarcoma; it was removed by means of caustics (zinc chloride) and the sharp spoon; there has been no reproduction of the growth, though one year and a half has elapsed since the operation, no stenosis worth mentioning, and no loss of tone in the voice. In a second case cancer was diagnosed by means of the laryngotomy. An extirpation of the larynx was followed on the eleventh day by the death of the patient by catarrhal pneumonia.

58. Pauly's paper is based on an experience of twenty-four tracheotomies, of which twenty-one were performed on account of diphtheritic croup. Out of this number he has seen three cases of granulation stenosis of the trachea; one child died, the two others were cured in one and two years respectively.

From these cases (the histories of which are given in the original paper) he draws the following conclusions:

1. That the granulation stenosis in his cases was produced by the non-removal of the canula. In one case the occurrence of scarlet fever prevented; in the other two, through neglect, the tube was not removed at the proper time.

2. That granulations sprout exclusively at the inner edge of the upper periphery of the tracheal wound, where there is no pressure from the canula: thence they involve the trachea to the middle of its side-walls, and project into its lumen.

3. That treatment is very tedious. He employed in the above cases, successively, first cauterization, then dilatation with elastic catheters, then Stearns's dilator (for the urethra) which answered well, permitting the patient to breathe during its introduction; but finally decided to force a passage through the granulation tissue, from below upward by dilatation. (A dilatation from above downward is to be avoided after a cricotomy. Billroth has lost a case in this way. The dilatation from below upward has to deal alone with the *ramus anastomoticus*). This was done in one case by means of the galvano-cautery without hæmorrhage; in the second a Pott's bistoury was boldly carried through the tissue, to the lower edge of the thyroid cartilage, the patient being in Rose's position; a cotton tampon was then pushed over the canula, and the bleeding checked.

The granulation tumors which presented on either side were removed by means of Wilde's polypus snare for the ear, which answers excellently well. Zinc bougies, properly curved, were then carried up through the wound, until they could be felt by the finger introduced into the mouth. This, of course, could only be tolerated for a moment; but repeated and persevering attempts finally succeeded, in one and two years respectively, in entirely curing the cases, without leaving any aërial fistulæ.

(On this subject *see* W. Koch and Dupuis, *Centralblatt für Chirurgie*, 1877, No. 31, and 1876, No. 2.)

CONTRIBUTED BY DRS. GEORGE R. CUTTER, EDWARD FRANKEL, AND W. T. BULL.

SURGERY.

Ligatures of Carbolised Catgut. (Clinical Society of London).—Mr. Bryant exhibited preparations of four arteries which had been ligated with this material (an external iliac, a right common carotid, a right subclavian, and a right common femoral). In all, the inner and middle coats had been divided at the ligation, and the external coat separated by subsequent ulcerative process. He had also ligated ten other large arteries with it. One case died on the tenth day; in two there was secondary hæmorrhage; and in the others an uninterrupted recovery, with little or no suppuration, ensued. The water-dressing or dry lint was used in dressing, and no spray of carbolic acid. He believed that this ligature divided the inner and middle coats, and then excited ulceration in the external coat. While not indorsing the opinion of Mr. Lister, "that by applying a ligature of animal tissue antiseptically upon an artery, whether tightly or gently, we virtually surround it with a ring of living tissue, and strengthen the vessel where we obstruct it," he still thought that, "as the loop of the catgut ligature dissolves within an uncertain period, and there is not of necessity any sloughing or ulceration, as must ensue where a more permanent material is employed, we have in the carbolized catgut the best ligature at our disposal." Mr. Maunder had tied nine arteries antiseptically, but only five with catgut. The result was satisfactory, but he had heard of serious accidents after its use, such as solution, slipping of the knot, division of the coats in one case, and failure to accomplish this in another, which did not occur when the "time-honored" silk was employed. He had therefore decided never to use it again.

Mr. Barwell had used it in five cases. All did well. He used only force enough to divide the inner coat and occlude the artery. The ends should not be cut too short.

Mr. Callender said that, in three cases at St. Bartholomew's Hospital, the ligature had been applied for aneurism. It seemed to slip or yield, and pulsation returned in a few hours.—*Medical Times and Gazette*, October 20, 1877. W. T. B.

Carbolized Catgut in the Ligature of Arteries.—Mr. Lane, of St. Mary's Hospital (London), is of the same opinion as Mr. Bryant in regard to catgut ligatures. He has used them in fifteen operations in the continuity: seven of the femoral artery, two of the external iliac, three of the carotid, and one each of the brachial, radial, and ulnar. The results have been satisfactory, although the wounds have not been treated antiseptically. In two cases he has been able to examine the artery after death. The first was one of popliteal aneurism, where the femoral was ligated, and twenty-five days later the external iliac. Death sixty hours later. In both arteries there were firm clots both above and below the ligature; the internal and middle coats were divided, the external constricted and not ulcerated. There was plastic exudation at the seat of ligature, but suppuration in the more superficial parts of the wound. The loop of the ligature on the left iliac (sixty hours after operation) was beginning to soften, but the knot was firm. There were no traces of the catgut about the femoral; but the external coat had become a fibrous cord connecting the ends of the artery.

In the second case the external iliac was tied for hæmorrhage from a sloughing syphilitic abscess of the groin. Death in thirty-two days. There was sloughing of the wound, which did not extend to its deeper parts, the peritoneum and tissues adjacent to the artery being healthy. No traces of the ligature. Constriction and firm closure of the vessel at its point of application. Mr. Lane attributes the satisfactory closure of the artery in this instance to primary adhesive inflammation of the deeper part of the wound. "Had there been a ligature protruding from the wound, it must have carried the infection of sloughing phagedena down to the vessel," and secondary hæmorrhage have been a "probable, if not an inevitable, consequence."—*British Medical Journal*, November 10, 1877. W. T. B.

Atrophic Orchitis consecutive to Mumps.—Lereboullet presented to the *Société Med. des Hôpitaux* a soldier, twenty-eight years of age, who had suffered from mumps four months since. On the fourth day of this affection he was attacked with double orchitis, which disappeared in three days. The tumefaction of the parotids continued several days longer, and then disappeared. After 20 days the testicles began to atrophy, until they were no larger than an almond. At the same time the other virile organs also atrophied; the hairs disappeared from the chin, although they remained on the pubis. The mammæ developed considerably, and in proportion to the advancing atrophy of the testicles.

Rendu has observed, with Gubler, a patient who had atrophy of the left testicle and an hypertrophy of the mamma of the same side, which would seem to prove an antagonism between the development of the testicles and that of the mammary glands.—*France Méd.*, August, 1877.

G. R. C.

RECENT PAPERS AND NOTES OF CASES.

A Clinical Lecture on Dislocation of the Hip into the Obturator Foramen. T. Holmes (*Medical Times and Gazette*, October 27, 1877).—In this case, after failure of Bigelow's method of flexion and inward rotation, reduction was accomplished by making traction vertically upward (with the foot on the horizontal ramus of the pubes), together with slight to-and-fro movements.

Intestinal Obstruction; Enterotomy; Death. (Middlesex Hospital, Dr. Cayley and Mr. Lawson.)—Symptoms existed for five days, when right colotomy was performed. Only coils of small intestine appeared, one of which was opened and stitched to edges of the wound. Death in twenty-two hours. Forty inches of small intestine were constricted by passing through a ring of fibro-fatty tissue at the right lower angle of the omentum. This opening was produced by a rent in the omentum, or else "some previous inflammation had caused adhesion of the two portions of the omental margin, so as to form a loop, through which the hernia took place."

Cases from St. Thomas's Hospital.

Traumatic Aneurism of the Hand; Failure of Treatment by Compression; Ligature of the Brachial Artery with Carbolized Catgut;' Cure. (Mr. Sidney Jones.)

Traumatic Tetanus treated by Profuse Sweating; Cure. (Mr. Wagstaffe.)—The hot-air bath was employed for about three quarters of an hour twice a day, for twenty-three days; then once a day for a week (temp. 140°). The symptoms were not of severe character, being limited to trismus, stiffness of the neck, rigidity of the abdominal and lumbo-spinal muscles, and slight left facial paralysis. These appeared on the fifth day after a lacerated wound about the left ear. Calabar bean and nitrite of amyl have been thoroughly but unsuccessfully tried by Mr. Wagstaffe.

Right Popliteal Aneurism; Arrest of Pulsation by Esmarch's Bandage; Recurrence; Second Application; Cure. (Mr. Sidney Jones.)—*British Medical Journal*, October 20, 1877. W. T. B.

Muscular Contraction simulating Coxalgia.—At a July meeting of the Société de Chirurgie (*Gaz. Méd. de Paris*, 32, 1877), M. Verneuil called attention to an affection of infancy simulating coxaglia, and probably often confounded with it. It is characterized by a certain awkwardness in walking, which in some cases approached lameness, by limitation of certain movements, and by faulty position of the pelvis and inferior extremities. The most striking feature is constant rigidity of the adductors of the thigh. The case related by Verneuil was that of a boy three years old, pale and slender, restless, who had never been sick, but was affected with an intermittent but painless lameness. On examination of the child on its back, the extremities were found symmetrical, and the inguinal and gluteal folds had their normal position. But in the standing position, and in a profile view, the attitude was senile. The thighs were slightly flexed on the pelvis, the buttocks projected, the shoulders were rounded; the gait was that of a little old man; the knees were inclined toward each other, as if glued together; one step was longer than the other, and the child frequently fell. When lying on the back, the position of the shoulders remained, even when the thigh was flexed on the pelvis. Still, the limbs were symmetrical, and the pelvis in its position. The thigh could be forcibly flexed to its farthest limits. Both rotation inward and adduction were perfectly easy, but complete extension was limited, and adduction was impossible beyond 25° to 35°. In short, adduction and extension were the same as in coxaglia. There was never any pain, and the limbs became more flexible after walking. In one of the patients there were scrofulous antecedents. There had been more girls than boys affected. The father of one child was rheumatic; another had a brother affected with scoliosis and flat feet. Nearly always the affection was bilateral, and sometimes intermittent, in this differing from coxalgia. The faulty attitude was evidently caused by rigidity of the adductors, which were felt as hard cords under the skin, and sometimes by rigidity of the psoas. The causes of this condition were unknown to Verneuil. As to the question of priority which was brought forward by several members, Verneuil observed that the contractions spoken of by Duchenne did not affect the adductors, and were of cerebral origin, which was not the case in this instance. Phillipeaux was more explicit: in ten observations of contractions simulating coxalgia, three more or less resembled contraction of the adductors. Onimus had recently made allusion to this kind of contraction in women. In differentiating from commencing coxalgia, it was important to take into account the bilateral affection; that in coxalgia the limbs were always symmetrical in the standing position, and there was always lameness. Nothing was to be said regarding treatment. Immobilization for months, as in coxalgia, was inadmissible. Verneuil advises the application of the constant current to the adductors, and faradization of the rest of the limb; furthermore, cold douches and a tonic regimen. E. F.

On the Treatment of Pre-patellar Hygroma by Means of Incision.—Volkmann reports several cases of chronic, as also acute, hygromata, which were treated by incision and antiseptic dressings. Of chronic hygromata, six of the knee and one of the bursa anconea were treated in the following manner: The hygroma is split by a longitudinal incision. By strong distention of the sac an elliptical portion of its wall may be excised; the fluid and floating bodies are then removed; thicker coagulations are scraped from the walls by means of the sharp spoon. The cavity having been thoroughly washed with a 5 per cent. carbolic-acid solution, two thick pads of Lister's gauze are firmly applied on both sides of the incision. If by these means the incision does not gape sufficiently, two short drainage-tubes are introduced perpendicularly into the sac. The space between the pads is filled up with a compress of carbolized gauze. The entire knee is then enveloped in several layers of carbolized gauze, the whole being secured by a bandage. The limb is placed on a splint, and after three or four days adhesion has taken place. At first the dressing is changed several times, but, as a rule, only three to four dressings are necessary. Cicatrization is complete in two or three weeks. The above-mentioned seven cases all terminated favorably in the manner described; in one case only there was slight fever.—Cases of acute suppuration, or even phlegmonous bursitis, which are usually associated with high fever, extensive inflammation and suppuration of the knee-joint, can result as favorably as the chronic cases, provided they are treated by the above method. The author reports several cases which were cured after careful incision and drainage of the suppurating bursæ and sinuses, followed by the antiseptic dressing.—*Berlin. kl. Wchschrift* and *Med. Chir. Centralblatt.* E. F.

New Method of Staphylorraphy.—The method employed by Schönborn, in a female seventeen years of age, affected with a congenital fissure of the hard and soft palate, consisted in attaching to the freshened edges of the fissure a flap obtained from the posterior pharyngeal wall. In order to perform the operation with safety, tracheotomy and tamponing of the trachea, according to Trendelenburg, were resorted to after the patient had been narcotized. The flap, whose basis was downward, measured about two centimetres in breadth and four to five centimetres in length. The flap began as high up as possible on the pharyngeal wall, so as to avoid all tension; in the dissection, a long, double-edged knife was employed, the blade being bent at right angles at about two centimetres from its point. The muco-periosteal covering of the hard palate having been dissected off in the usual manner, and the soft palate having been made movable, the triangular flap was attached by sutures to the soft palate, followed by the closure of the cleft in the hard palate. With the exception of a portion about one centimetre in length on the left side, the edges united. Neither respiration nor deglutition was impeded by the flap, and the patient regained perfect speech, without the nasal twang. The author recommends this method as preferable to the one hitherto employed, with the modification, that the union of the flap be attempted first, before the cleft in the hard palate is closed, as union of the flaps of the latter does not always succeed if both operations are done at the same time.—*Med.-Chir. Rundsch.* and *Med.-Chir. Centralblatt.*

OBSTETRICS.

On Absorption of Certain Remedies by the Placenta, and their Elimination by the Urine of the New-Born.—The first substance employed by M. Porack was iodide of potassium, which was administered several minutes, or hours, before delivery, the urine of the infant being examined in order to establish the elimination. The conclusions arrived at by the author are: 1. In a dose of twenty-five centigrammes, iodide of potassium is always discoverable in the urine of the new-born; the more so when the dose is larger. 2. More than half an hour is required for the salt to pass through the placenta; the characteristic reaction is found after forty minutes. 3. When the urine is collected immediately after birth, and the reaction obtained is compared to that discovered in urine collected several hours afterward, the former reaction is always feebler; otherwise no reaction is obtained in the urine of the stillborn infant The eliminating action of the kidneys only commences after birth. Before delivery the placenta absorbs and eliminates remedies which temporarily enter the fœtal organism. 4. When twenty-five centigrammes of iodide of potassium are given to a woman in labor, the quantity absorbed by the placenta is small, and its elimination by the urine of the new-born is rapid. 5. When fifty centigrammes of iodide of potassium are given to the mother, its elimination by the kidneys of the new-born is always much slower than by the mother. While, usually, the complete elimination of iodide of potassium takes place in thirty-six hours in the mother, it is not unusual to find its elimination incomplete in the child on the fourth day. In two cases it had not been completed on the fifth and sixth day. The importance of this slow elimination in the new-born, in connection with treatment administered to the lying-in or nursing mother, is evident, for the remedy can in this way accumulate in the child, and give rise to symptoms of poisoning.—*Journ. de Thér.* and *Lyons Médicale.* E. F.

Is Syphilis Communicable through the Milk?—R. Voss (*Petersburg med. Wochenschr.*, No 23, 1876) inoculated three prostitutes with the milk of a syphilitic woman. The woman had a papular syphilide; there were moist mucous papules on the genitals and on the anus; the mammary glands were quite free. The milk was obtained by expression, and a Provaz syringeful injected into the three prostitutes. The first was syphilitic; the inoculation was naturally without result. The second had urethritis, and remained well. The third, sixteen years of age, never had been syphilitic, came into the hospital on September 16th, in consequence of urethritis, and the milk was injected on the 27th. A large inflammatory swelling formed (as in the first patient), which became an abscess, and was healed on October 24th. On November 3d (that is, 40 days after the injection) a papular eruption formed around the place of injection, and on November 8th the other portions of the body showed a maculo-papular syphilide in addition to adenitis. The symptoms disappeared under inunction. Voss therefore regards it as proved, that the milk of syphilitic individuals is capable of producing syphilis, the same as the blood.—*Centralblatt für d. med. Wiss.*, No. 44, 1876. G. R. C.

THEORY AND PRACTICE.

Treatment of Diabetes Mellitus with Salicylate of Soda.—Ryba and Plumert have arrived at the following results: 1. Salicylate of soda, given in daily doses of eight grammes, determined a decided diminution of saccharine excretion. 2. Considerable differences are observed, according to the severity of the case. In recent cases the sugar can be made to disappear completely, and does not reappear immediately after the remedy is stopped. In cases of longer duration, the effectiveness of the remedy is also apparent, though the sugar does not disappear entirely, nor is there a favorable after-effect. Lastly, in cases of several years' duration, with severe diabetic symptoms, no result was attained by treatment, at least, not from the small doses administered. 3. The diminution of saccharine production is more remarkable by the greatest restriction of hydrocarbons in the diet. 4. Diminution of the quantity of urine is parallel with the diminution of sugar; but in one case the polyuria remained in spite of the considerable diminution of saccharine excretion. Other diabetic symptoms, and the bodily weight, are also favorably influenced. 5. In two cases the quantity of both urine and sugar was increased for a short time after the commencement of medication, followed, however, by progressive diminution. Treatment by salicylate of soda is followed by a greater diminution of sugar excreted than when the treatment is indifferent—*Präger Med. Wochenschrift*, 19, 20, 21, 1877, and *Med.-Chir. Centralblatt.*

PHYSIOLOGY.

Promotion of Fecundity of Hens.—In Germany, and more especially in the principality of Nassau, a particular alimentation is adopted to render hens more fecund during winter and those periods when they ordinarily lay but few eggs. All the edible fungi are gathered, dried, and reduced to powder; capsules of linseed are then ground, and one kilogramme of this mixed with two of rye or wheat flour, and half a kilogramme of powdered acorns. To this a half kilogramme of the powdered mushroom is added, with sufficient water to form a paste, which is made into small pellets the size of a pea, and given to the hens to eat.—*Giorn. Ven. di Scienze Mediche*, No. 6, 1877. G. R. C.

Miscellany.

Appointments, Honors, etc.—Dr. J. G. Richardson has been elected to the chair of Hygiene in the University of Pennsylvania, vacant by the resignation of Dr. Horace B. Hare. Dr. J. F. Hibberd, of Richmond, Ind., has been elected President of the Tri-States Medical Society, which includes Indiana, Illinois, and Kentucky. The late Dr. E. H. Clarke, of Boston, left his valuable library to the Boston Medical Library Association. The name of the Washington University Hospital, Baltimore, has been changed, by the Faculty of the College of Physicians and Surgeons, to the City Hospital.

Sir William Thompson has been elected a Foreign Associate of the Académie des Sciences of France, in place of the late Prof. von Baer. Mr. Edwin Lapper succeeds the late Dr. Handsel Griffith as Lecturer in Chemistry in the Ledwich School of Medicine. It is proposed to abolish the Medical Microscopical Society of London, on account of the small attendance. A fine statue of the late Dr. Graves was unveiled by the Duke of Marlborough, with imposing ceremonies, in the hall of the College of Physicians of Dublin, in the latter part of December. Dr. David Wilson has been elected President of the Edinburgh Obstetrical Society for the ensuing two years. The Medical Class of the University of Edinburgh numbers 920. M. Richet has been unanimously elected President of the Académie de Médecine of Paris for the ensuing year. Volkmann, of Halle, has declined a call to Würzburg. Prof. Wagner has succeeded the late Dr. Wunderlich in the chair of Clinical Medicine at Leipsic; and Prof. Cohnheim has accepted the chair of Pathological Anatomy and General Pathology in the University of Würzburg. Dr. Jurecki is the only Russian surgeon reported killed during the war with Russia. He was killed in the attack on Kars.

Journalistic Notes.—Dr. Joseph Coats has become editor of the *Glasgow Medical Journal*, which will hereafter be issued monthly instead of quarterly.

It is announced that a new quarterly journal of mental diseases, entitled *Brain*, will shortly be issued by Messrs. Macmillan. The editors will be Drs. J. C. Bucknill, Crichton Brown, Hughlings Jackson, and Ferrier.

Dr. W. Zuelzer, of Berlin, and Dr. A. Burkart, of Stuttgart, announce a new journal, the *Centralblatt für Dermatologie und Syphilis,* to be issued monthly, by Ferdinand Enkéschen, of Stuttgart.

A new journal, entitled the *Nosographul Ospitalulin,* is to be published in Néamtu, Roumania. It will be edited by Drs. Ulle and Moscovish.

The *Detroit Lancet* is to supersede the *Detroit Medical Journal,* with Drs. H. A. Cleland and L. Connor as editors.

Dr. Thomas Dwight, for several years one of the editors of the *Boston Medical and Surgical Journal,* has retired. Dr. J. C. Warren is editor-in-chief.

Dr. Galt has retired from the *Louisville Medical News,* and his place is filled by Dr. L. P. Yandell, Jr.

Priority in Antiseptics.—The *Medical Times and Gazette* of January 5th thus concludes a brief review of the basis of the antiseptic system: "History, then, teaches us that the authors of the antiseptic system were Pasteur and Lemaire, who formulated its principles in 1860. It was not till 1867 that Prof. Lister made public his method, founded on these principles, but it will be agreed on all hands that he has done a most valuable work in elaborating, with all the earnestness of a truly scientific observer, both the theory and practice of antiseptic surgery.

Lister in London.—We see by a clinical lecture by Prof. Lister, published in the *Lancet* of January 5th, that he has already performed successfully in London some operations that would seem almost rash under any other method than his. He is now using and recommending horse-hair for drainage, as superior to either rubber tubes or catgut. The lecture concludes with an apology for his offensive remarks about clinical surgical teaching in London, and an explanation that they were based on the condition of teaching when he was a student, and that they were not intended for publication.

New York State Medical Society.—The annual meeting of this Society was held in Albany, January 15th, 16th, and 17th. In the absence of the President, Dr. J. P. Jenkins, the Vice-President, Dr. A. L. Saunders, presided. A number of excellent papers were read and discussed, some of which we shall refer to hereafter. The following officers were elected for the ensuing year: President, Dr. D. B. St. John Roosa, of New York; Vice-President, Dr. J. C. Nelson, of Cortland; Secretary, Dr. W. Manlius Smith, of Onondaga; Treasurer, Dr. C. H. Porter, of Albany.

Lactopeptine.—This preparation, which has the merit of being considerably cheaper than the best kinds of pepsin, has been found by actual experiment to possess a decided and uniform solvent power, greater, weight by weight, than pepsin as usually prescribed. It is a combination of pepsin, sugar of milk, pancreatine, ptyalin, and lactic and hydrochloric acids. We have administered lactopeptine in a number of cases where pepsin was indicated, and have been fully satisfied with the result.

Medical Journal Association.—At the annual meeting, held December 7, 1877, the following officers were elected for the ensuing year: President, Dr. Robert F. Weir; First Vice-President, Dr. H. F. Walker; Second Vice-President, Dr. W. T. Lusk; Recording Secretary, Dr. P. B. Porter; Assistant Recording Secretary, Dr. W. T. Bull; Corresponding Secretary, Dr. A. McL. Hamilton; Treasurer, Dr. W. F. Cushman; Librarian, Dr. J. H. Emerson; Directors, Drs. H. P. Farnham, W. Johnson, C. M. Allin, and B. Robinson.

St. Luke's Hospital.—Drs. W. M. Polk and George Wheelock have been appointed attending physicians, in place of Drs. Leaming and Packard, whose time had expired; and Dr. G. H. Wynkoop visiting surgeon, in place of Dr. J. L. Little. Dr. Little has been made consulting surgeon, and Dr. James R. Leaming special consulting physician for diseases of the heart and lungs.

The Liquefaction of Oxygen.—The news was telegraphed to Paris from Geneva, in the last week of 1877, that M. Raoul Pictet had succeeded in obtaining the liquefaction of oxygen gas.

Under a pressure of 300 atmospheres, and the influence of intense cold, the oxygen became a liquid. Hydrogen and nitrogen are now the only remaining elemental gases which have not been reduced to a liquid form.

Female Students in Russia.—It is stated in *Nature* that on the reopening of the St. Petersburg Ladies' High Medical School, October 13, 1877, 118 students were admitted. A much larger number passed the examination, but could not be admitted for want of room. A fifth class has been added, and the students now receive the degree of surgeon at the completion of the course of study.

Antiseptic Chambers.—Mr. W. Thompson, F. R. S., of Manchester, England, proposes the construction of a room, or series of rooms, for surgical purposes, that shall contain only air that has been so thoroughly filtered through layers of cotton-wool as to be entirely free from germ-life. His experiments have satisfied him that such a plan is feasible.

Number of Medical Students in Paris.—The total number of medical students registered on the books of the Paris Faculty of Medicine, December 1, 1877, was 4,817 (*Medical Times and Gazette*). Of these, 21 were females, 11 of whom were from Russia. During the year ending November 1, 1877, 550 degrees of M. D. were conferred.

Murder of a Polish Surgeon.—The *Times and Gazette* of December 22d announces the death of Dr. Girsztorot, Professor of Surgery in Warsaw, and editor of a Polish medical journal. He was attacked by a journeyman printer, and severely wounded with a knife. He died from gangrene on the eighth day.

The Berlin Medical Society.—At the last annual meeting of this society a report was read, stating that 22 meetings had been held during the year and 30 papers read and discussed, and that the number of members had increased to 414. Prof. von Langenbeck was elected president for the ensuing year.

New York Ophthalmological Society.—The following gentlemen were elected officers of the Society for the year 1878, at the annual meeting, January 14: President, Dr. H. C. Eno; Vice-President, Dr. C. S. Bull; Secretary and Treasurer, Dr. G. R. Cutter; Committee on Admissions, Drs. J. D. Rushmore, E. G. Loring, and Edward Curtis.

A New Work on Pathology.—A work entitled "Studies in Pathological Anatomy," by Francis Delafield, M. D., is in course of publication by William Wood & Co., of this city. It is to appear in monthly parts, each containing from two to four lithographic plates, in color, with explanatory text. The first part is now ready.

Wheel-barrows for the Sick.—The Police Commissioners of Dundee, Scotland, have supplied each police station with a double-springed wheelbarrow, for the transportation of drunk and incapable persons. The new vehicles are said to be more convenient and easily managed than any other conveyance that has been tried for the same purpose.

California Medical College.—At the graduation exercises of the Medical College of the Pacific, held November 6, 1877, 13 diplomas were conferred.

At the exercises of the Medical Department of the University of California, held the preceding day, the graduating class numbered 15.

Dissection of a Gorilla.—The body of the Berlin gorilla Pongo has been carefully dissected by Profs. Virchow and Hartmann. The cause of death was found to be acute peritonitis. Pins, iron wire, and a button-glove, were found in the stomach.

A Preparatory Medical School.—We learn from the Cincinnati *Lancet and Observer* that a school of medicine has been established in Toledo, in connection with the St. Vincent's Hospital. The design is merely to furnish preparatory medical education, and not to confer degrees.

Death from Chloroform.—The *Canada Lancet* of January 1st reports the death, at Ancaster, Ontario, of an elderly lady from a small quantity of chloroform, given for an intended operation on a tumor in the axilla. Death was sudden. The *post mortem* revealed fatty degeneration of the heart.

Public Museums of Anatomy.—We are glad to see that the Boston authorities persistently refuse to license the so-called "Museums of Anatomy." These institutions are sources of unmixed evil, appealing to the lowest passions, and gratifying only a morbid and prurient curiosity.

Double Uterus and Vagina.—In the *Boston Medical and Surgical Journal* of December 20th, Dr. J. R. Chadwick reports four cases, and Dr. J. S. Sullivan one case, of double uterus and vagina.

The late Dr. Buck's Contributions to Surgery.—At a meeting of the New York Academy of Medicine, held January 3d, Dr. Alfred C. Post read an eloquent memoir of the late Dr. Gurdon Buck, and mentioned the following as his principal contributions to surgery:

In 1846 he published a paper in the *American Journal of Medical Sciences*, entitled, "An Operation for Anchylosis of the Knee-Joint." The operation was an original one, and consisted in removing a wedge-shaped portion embracing the condyle of the femur, the patella, and the articular surface of the tibia.

In 1848 he read a paper before the American Medical Association, in which he brought forward "Scarification as a Means of Treatment in Œdematous Laryngitis."

In 1853 he read a paper before the same Association, "On the Surgical Treatment of Morbid Growths within the Larynx."

In 1855 he read an elaborate paper before the New York Academy of Medicine, "On Badly-United Fractures of the Thigh."

In the same year he published a paper in the *New York Medical Times*, "On the Treatment of Deep Wounds of the Parotid Region." The operation resorted to for the control of hæmorrhage in the case reported was an original one, and consisted in ligation of the primitive and also the internal carotid arteries.

In 1857 he published a paper in the *New York Journal of Medicine*, "On the Treatment of Post-Facial Abscess in the Iliac Fossa."

In 1861 he read a paper before the New York Academy of Medicine, "On an Improved Method of Treating Fracture of the Thigh." The method brought forward was that of continuous extension by means of adhesive plaster, weight and pulley, and commonly known as "Buck's Extension Apparatus."

In 1867, at the International Exhibition at Paris, a model of this apparatus was entered, and Dr. Buck received a diploma and medal as a testimonial to its great value as a means of treating fracture of the thigh. The idea, however, did not originate with Dr. Buck. The principle of continuous extension had been illustrated by Dr. H. G. Davis, in his apparatus for the treatment of morbus coxarius, and it was through him that Dr. Buck became acquainted with the appliance. To Dr. Buck, however, the credit should be given for utilizing the principle in the treatment of fracture of the thigh, and for bringing it prominently before the profession.

In 1869 Dr. Buck read a paper before the Medical Society of the State of New York, "On Lithotomy and Lithotrity," and gave the results of operations for the relief of *fifty* cases of stone in the bladder.

In 1872 he published a small volume upon the same subject.

In 1876 he published a small-sized octavo volume "On Reparative Surgery," in which is given his experience in treatment and the operations performed for the relief of deformities produced by burns, gunshot-wounds, and other injuries.

Spencer Wells's Farewell. — Our London correspondent, whose letter appears elsewhere, refers to the retirement of Dr. T. Spencer Wells from the Samaritan Hospital, where he has achieved perhaps the most brilliant surgical record of the age. He has performed in that hospital 408 ovariotomies, with 309 recoveries. Of the last 29 performed in 1877, 26 recovered. Dr. Wells's remarks on his retirement are worthy of reproduction, though largely quoted from another eminent surgeon. He concludes as follows:

"A long while ago I was deeply impressed by some remarks made by Sir Benjamin Brodie on his retirement from St.

George's Hospital, after 18 years' service as surgeon. I forget the exact words, but he has reprinted something very like them in the conclusion to his 'Autobiography.' He says: 'It was not without a painful effort that I made up my mind to resign an office to which I had been sincerely attached. In doing so I was influenced by various considerations. One of them was, that I began to feel the necessity of diminishing the amount of my labors. Then, I had long since formed the resolution that I would not have it said of myself, as I had heard it said of others, that I retained a situation of such importance and responsibility when, either from age or from indifference, I had ceased to be fully equal to the duties belonging to it. And lastly, when I saw intelligent and diligent and otherwise deserving young men around me, waiting their turn to succeed to the hospital appointments, it seemed to me that there was something selfish in standing longer in their way, when, as far as my own mere worldly interests were concerned, I had obtained all that I could desire.'

"When I first heard these sentiments of Sir Benjamin Brodie, I determined that, if I should ever be placed in any like position, I would do my best to follow the example set by so wise and good a man; and, in carrying out that determination now, I trust that, while I am thus enabled to devote more time and attention to my private practice, I shall still be of some use to the suffering women in the hospital, without standing in the way of ambitious and deserving juniors, who have worked long and hard for the position they have now attained, and which, I sincerely hope, they may enjoy for many years to come."

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from December 14, 1877, *to January* 13, 1878.

Murray, R., Colonel and Surgeon.—Announced as Medical Director of the Division. G. O. 1, Division of the Missouri, January 2, 1878.

Alexander, R. H., Major and Surgeon.—Granted leave of absence for four months, from January 1, 1878. S. O. 1, A. G. O., January 2, 1878.

Baily, J. C., Major and Surgeon.—Assigned to duty at the Presidio of San Francisco. S. O. 158, Division of the Pacific and Department of California, December 12, 1877.

Bache, D., Major and Surgeon.—Assigned to duty at Benicia Arsenal, California. S. O. 158, Division of the Pacific and Department of California.

Storrow, S. A., Major and Surgeon.—Assigned to duty at Fort Laramie, Wy. T. S. O. 1, Department of the Platte, January 2, 1878.

Hartsuff, A., Major and Surgeon.—Assigned to temporary duty at Fort Gratiot, Mich. S. O. 18, Department of the East, December 18, 1877.

Waters, W. E., Captain and Assistant Surgeon.—To return to San Antonio, Texas, and report in person to the commanding general Department of Texas for assignment. S. O. 4, A. G. O., January 4, 1878.

Brooke, **John**, Captain and Assistant Surgeon.—Assigned to duty as Post Surgeon at Newport Barracks, Ky. S. O. 199, Department of the South, December 14, 1877.

Phillips, H. J., Captain and Assistant Surgeon.—Relieved from duty in Department of the East, and granted leave of absence for three months on surgeon's certificate of disability, from January 1, 1878. S. O. 257, A. G. O., December 18, 1877.

Carvallo, C., Captain and Assistant Surgeon.—Granted leave of absence for one month, with permission to apply for ten days' extension. S. O. 1, Department of the Missouri, January 2, 1878.

King, J. H. T., Captain and Assistant Surgeon.—Granted leave of absence for one month on surgeon's certificate of disability. S. O. 214, Department of Texas, December 19, 1877.

Elbrey, F. W., Captain and Assistant Surgeon.—Assigned to duty at Oglethorpe Barracks, Savannah, Ga. S. O. 208, Department of the South, December 27, 1877.

Havard, V., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort A. Lincoln, D. T. S. O. 177, Department of Dakota, December 20, 1877.

Paulding, H. O., First Lieutenant and Assistant Surgeon.—Granted leave of absence for one month, with permission to apply for three months' extension. S. O. 1, Department of Dakota, January 2, 1878.

Finley, J. A., First Lieutenant and Assistant Surgeon.—Leave of absence extended two months. S. O. 5, A. G. O., January 5, 1878.

Shufeldt, R. W., First Lieutenant and Assistant Surgeon.—Assigned to duty at Omaha Barracks, Neb. S. O. 141, Department of the Platte, December 10, 1877.

Davis, **Wm.** B., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Totten, D. T. S. O. 177, C. S., Department of Dakota.

De Graw, C. S., Captain and Assistant Surgeon.—His resignation accepted by the President, to take effect January 1, 1878. S. O. 257, A. G. O., December 18, 1877.

Buchanan, **Wm.** F., Captain and Assistant Surgeon.—Granted leave of absence until April 1, 1878, and his resignation accepted by the President, to take effect April 1, 1878. S. O. 2, A. G. O., January 3, 1878.

Obituary.

It is with profound sorrow and regret that we are called upon to record the death of Dr. EDMUND R. PEASLEE, which occurred at half-past 12 o'clock on Monday, January 21st. Dr. Peaslee was sixty-four years of age, but was actively engaged in professional duties until within a few days of his death, which was caused by pneumonia.

DR. AUSTIN L. SANDS, of Newport, R. I., died in Cairo, Egypt, December 20, 1877. His health had been failing for several years, but his death was doubtless hastened by injuries received in an assault made upon him in the summer of 1876. He had for many years enjoyed a large practice in Newport, and was exceedingly popular with his patients.

DR. JOSIAH BARTLETT died in Concord, on January 5th, at the age of eighty-one years. He had been longer in practice than almost any graduate of the Harvard Medical School, Dr. William Perry, of Exeter, N. H., and the late Dr. Martyn Paine, of New York, having, perhaps, practised a few years more. He graduated at Harvard College in 1816, in the same class with the Rev. W. B. O. Peabody, and took his medical degree in 1819, in the same class with the late Dr. John Jeffries. Instead of going abroad, as Dr. Jeffries did, Dr. Bartlett, then twenty-three years old, settled in Concord in 1819, and has remained there ever since, in the constant practice of his profession for 58 years. He visited patients within a week of his death, and has been an active physician since he passed the age of fourscore. His father, Dr. Josiah Bartlett, of Charlestown, was in practice at the time of the battle of Lexington, and amputated an arm cn the 19th of April, 1775.—*Boston Medical and Surgical Journal.*

DR. NINIAN PINCKNEY, U. S. N., died in Easton, Md., December 22, 1877, after a brief illness. Dr. Pinckney was a native of Maryland, and entered the Navy in 1834. He served nearly 43 years, 15 of which he was at sea. His last cruise was made in 1865. At the time of his death he held the commission of Medical Director, with the rank of Commodore, date March 3, 1871.

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Original Communications.

Art. I.—*A Contribution to Syphilis of the Eyelids.* By Chrales S. Bull, M. A., M. D., Surgeon to the New York Eye and Ear Infirmary, and to Charity Hospital.

If we glance over recent medical literature in both the departments of ophthalmology and syphilis, we shall find that there is very little said of syphilitic affections of the eyelids. This is probably owing to two causes: 1. Because we understand better how to treat syphilis, and hence do not often meet with the destructive changes of the disease which used to be the rule; 2. Because syphilitic lesions of the eyelids are not common. Thus Zeissl, out of 40,000 cases of syphilis, has only seen eight cases of disease of the eyelids, and two of these were patients in Arlt's ophthalmic clinic; and most recent writers speak of the rarity of their occurrence. In the days when the nature of the syphilitic poison was but little understood, and the treatment of its lesions much less carefully carried out than now, the ravages of syphilitic ulcerations were much more extensive than we now see them, and the eyelids shared in the destructive process. We know, from the older writers on diseases of the eye, that syphilitic eruptions, particularly the scaly and tubercular varieties, were very frequent upon the external surface and ciliary margin of the eyelids and the mucous membrane not uncommonly participated in the process. Thus, in one case of iritis, reported by Lawrence, there were papules on the palpebral conjunctiva, and in another case of general papular eruption there appeared several pustules on the conjunctiva. In still another case of the same author's, there were a tubercular eruption of the face and eyelids, and a number of small pustules upon the internal surface of the upper lid. In the *Edinburgh Medical and Surgical Journal* for 1832, John Campbell reports the case of a man, aged twenty-eight, whose forehead was covered by incrustations and cicatrices of previous sores, with an apparent exfoliation of the right superciliary ridge and neighboring parts of the frontal bone. Both lids of the right eye were completely destroyed; the conjunctiva stretched tightly from the upper to the lower orbital margin, and was very much thickened; the cornea was opaque, and there was only perception of light. The prepuce was entirely gone, from ulceration; there was a large ulcer encircling the root of the penis, and another beneath the glans penis and opening into the urethra. From the apparently great frequency of serious lesions in this region, the older authors had a very correct general idea of the course run by the disease, as may be seen by referring to their writings. In a recent article in the *Allgemeine Wiener med. Zeitung*, Zeissl mentions quite a number of them, and gives extracts bearing on this point, but his list does not claim to be a full one. The first author who is tolerably clear in his description is Astruc, in his "De Morbis Venereis," Paris, 1738. Then follows Plenk, in his "Lehre von den venerischen Krankheiten," Wien, 1787, who calls these lesions "venereal styes," and says they occur on the margin of the lid. These writers and their contemporaries, however, classed all lesions of the eyelids dependent upon syphilis together, and either did not think the conjunctiva was ever involved, or, when so recognized, they regarded the disease as having spread from the cutaneous surface of the lid.

One of the earliest instances of a recognized difference in character of the syphilitic lesion, when occurring on the external or internal surface of the lid, which I have been able to find, occurs in Middlemore's "Treatise on the Diseases of the Eye and its Appendages," 1835, page 740, *et seq.* He says that "syphilitic *eruptions* may occur on either the outer or inner aspect of the lid, but that syphilitic *ulceration* has always for its first locality the conjunctival mucous membrane or tarsal edge of the lid. A syphilitic eruption very rarely occurs on the mucous surface of the lids, but quite frequently on the cutaneous surface, extending to the tarsal margin. When ulceration occurs on the conjunctiva it does not produce much irritation, and may become quite extensive before noticed." He cites two cases where the ulceration was a mere abrasion of the mucous membrane, not having an indurated margin, but affecting a circular figure, and appearing like an excoriation. In these cases the edge of the lid was implicated. He was induced to suspect the nature of the disease, in one case, from the appearance of a yellowish eruption on the face and chest. In the other case the patient had a sore on the glans penis, but no other constitutional symptom. He makes this further point of distinction: "The eruptions are, of course, secondary, but the ulceration of the lid and conjunctiva proceeds always from direct contact with the matter from a venereal sore." We shall see, later, how far right he is.

Lawrence, in his "Treatise on the Venereal Diseases of the Eye," 1830, page 308, *et seq.*, is also tolerably clear on these points of differentiation. He says: "A syphilitic ulcer, commencing like a stye, with a circumscribed hard swelling on the ciliary margin, may occupy the whole thickness of the lid. It is sometimes acute, is attended by great inflammation and pain, and rapidly destroys the affected part. It is thus phagedenic, with red areola, sharp edge, and foul surface. When chronic, there are swelling and some hardness at the base of the sore, with induration of the skin, and very little loss of substance. Ulceration of the lid generally occurs in the conjunctiva with other syphilitic symptoms." He illustrates by a case of a patient who had syphilitic ulcers in various parts of the body, with periosteal nodes, whose left upper eyelid became very red and swollen, and, on everting it, there was seen upon the conjunctiva a sore with a tawny surface, which did not reach the edge of the lid. Lawrence further reports six cases of syphilis of the eyelids, which are not, however, very fully described. The first was a man, aged forty-three, who had an indurated sore of the prepuce with phymosis, a scaly eruption. and a large ulcer of the upper lid. The second was a man, aged thirty, who had ulceration of the external canthus, and subsequently of the lower lid of one eye, with other syphilitic symptoms. The third was a woman, aged twenty-five, who had a phagedenic ulcer of the upper lid, without any other syphilitic symptoms. The fourth was a girl, aged nineteen, with an ulcer of the forehead exposing the frontal bone, an ulcer of the left lower lid, one of the pharynx, and a scaly eruption of the face. The fifth and sixth were children—a girl, aged six, and a boy, aged four—who were subjects of congenital syphilis, and had ulcerations of the eyelids.

Alibert also treats of syphilis of the eyelids in his work entitled "A Description of the Diseases of the Skin," published between 1806 and 1825; and Zeissl refers to the German translation, published at Leipsic in 1838.

Colles, in his "Practical Observations on Syphilis and the Use of Mercury," also refers briefly to lesions of the lids.

Giraudeau de St. Gervais, in his "Traité des Maladies Vénériennes," Paris, 1841, makes one singular observation. In speaking of venereal ulcers of the eyelids, he says "they frequently cause symblepharon"—a fact which no other author has noted.

As we come down nearer our own times, the descriptions of the lesions become somewhat more detailed, and new points in their course are noted. Thus Fuchs, in his "Krankhaften Veränderungen der Haut," in speaking of diffuse gummata of the connective tissue, says: "Finally, but not until after a number of months, all these elevated spots in the skin are changed into large, foul, serpiginous ulcers; these occur occasionally on the eyelids."

Wallace, in his monograph on the "Course and Treatment of Primary and Constitutional Syphilis," says: "Prima syphilis is sometimes self-inoculated on the edge of the eyeli and begins like a pustule. During the ulcerative stage tl lid looks as if a piece had been cut out cleanly from its edg

When the granulating stage comes on, the ulcer has a yellowish-white proliferating appearance; but, as soon as cicatrization begins, the granulations shrink, and at the end there is always a defect in the lid."

Wedl, in his "Atlas der Pathol. Anat. des Auges," Leipsic, 1861, cites the case of a girl with congenital syphilis, who had an infiltration of the lower lid. On the inner half of the edge of the lid was a reddish-gray nodule, about the size of a pea, the surface of which had disintegrated, and had a pultaceous appearance. On the external half of the same lid there were cutaneous cicatrices. On dividing the lid vertically, the main seat of the infiltration was found to be the corium of the external skin.

In speaking of syphilitic infiltration of the eyelid in the *British Medical Journal* of April 18, 1863, Solomon agrees with other writers that in its early stage it may be mistaken for chalazion. "In syphilitic tubercle of the lid, the tarsal border becomes the seat of a well-defined, hard tumor, in the centre and free border of which a yellowish spot is apparent, and at this stage the tubercle bears a rude resemblance to a stye. The yellow spot sooner or later ulcerates, and, if the molecular changes are not controlled by mercury, a deep triangular notch is made in the border of the eyelid, and remains as a permanent deformity. The ulcer is at first superficial and of a dusky yellow color, and surrounded by a circumscribed, dense exudation."

Mackenzie, in his "Practical Treatise on Diseases of the Eye," 1866, recognizes the distinction between the syphilitic nodular infiltration which ends in ulceration and that lesion which begins as an ulcer. He makes the note that, though relieved, and even cured, by mercury, they are apt to return if its administration is stopped prematurely. He reports a case from the practice of Dr. Jackson, in which the patient—a woman, aged sixty—lost the entire nose, hard and soft palate, and all four eyelids, from syphilitic ulceration.

In Wecker's "Traité pratique des Maladies des Yeux," 1867, there is reported a case of a woman, aged twenty-eight, who contracted syphilis from her husband. Near the external angle of the right upper lid was a tumor, the size of a large bean, and slightly red, which had appeared simultaneously with other gummata upon the thighs. In spite of mercury and Zittmann's decoction, this tumor grew to the size of a pigeon's-egg, and ulcerated; but, after the central slough had been cast off, it healed rapidly. No potash was administered in this case.

Desmarres disagrees with all the more recent writers, and says that secondary syphilitic ulceration of the eyelids never appears without having been preceded by a condyloma.

The fact that a chancre, the initial lesion of syphilis, may occur upon the eyelid, has long been recognized; but, formerly, the primary sore occurring here was not differentiated from other ulcers, the result of a disintegrated gumma, or from a secondary ulceration of the conjunctiva. The occurrence of a chancre here is not very uncommon. Ricord ("Lettres sur la Syphilis," 3ᵉ édit., Paris, 1863) reports the case of a man with an indurated chancre at the internal angle of the lower lid, with successive enlargement of the preauricular, parotid, and submaxillary glands, and a general roseola. Rollet ("Traité des Maladies Vénériennes," Paris, 1865) reports two cases of indurated chancre of the lids, one in a young man at the internal angle, and the other in a young girl at the external angle. Desmarres cites two cases. Laroyenne gives three cases in the service of Nélaton and Desgranges (*Gazette Médicale de Lyon*, 1865), and cases are reported by Mackenzie, Wecker, Galezowski, Sturgis, Stellwag, and others.

Lancereaux, in the last edition of his work, calls special attention to the presence of the preauricular and submaxillary glandular enlargements as a very valuable diagnostic sign of chancre.

We occasionally meet with reports of cases in which the initial lesion of syphilis occurred at a very early age.

Thus Solomon, in the *British Medical Journal* for March 7, 1863, reports a case of primary syphilitic ulcer of the eyelid in an infant of eight months. There was a small unhealthy ulcer with indurated base at the inner angle of the lower lid, close to the roots of the cilia. The child was strumous, but had given no signs of congenital syphilis, and the parents had neither of them any trace of syphilis. An aunt, who occasionally fondled the child, was found covered with coppery blotches, and her tonsils were fissured by ulcers which were discharging. In this case Solomon thinks that the aunt had probably contaminated the child by kissing it. Six weeks later syphilitic blotches came on the child's buttocks, and one month later a large deep ulcer on the external genitals. After a while a fissure appeared at the commissure of the child's mouth; the mother's breast ulcerated, and she had constitutional symptoms.

Leaving, for a moment, the reports of individual cases, if we look through the standard literature of the last few years, we shall soon find how scanty is the material relating to the subject of syphilis of the eyelids. Arlt, Zehender, Bader, Wells, Hersing, and Schweigger, make but the barest mention of the occurrence of ulcers and infiltration of the eyelids of syphilitic origin.

Michel, in Graefe and Saemisch's "Handbuch der gesammten Augenheilkunde," has given more attention to the subject, and also considers lesions of the lids in inherited syphilis.

Lancereaux, Boeck, Laskiewicz, and others, are as barren in this respect as the ophthalmologists, but from this latter category we must except Zeissl. In the *Allg. Wiener med. Zeitschrift* for August and September, 1877, he has published a series of interesting articles upon lesions of the eyelids caused by syphilis, in which there are some good points made, though the subject is not discussed very fully.

The gradual growth of our knowledge upon this subject leads us to the statement that syphilitic lesions are of three kinds, occurring in order of time, as: 1. Chancre, or the initial sclerosis of Zeissl; 2. Exanthemata; 3. Gummata. The exanthematous variety is merely a local symptom, occurring on the eyelids, as elsewhere, of the constitutional disease. The gumma, or gummy infiltration of the lid, is a late manifestation of the disease.

The initial sclerosis may occur on the edge of the lid, or on its inner conjunctival surface, and presents all the signs of a chancre anywhere else in the body. The original starting-point has never been definitely fixed. Graefe thought that primary syphilitic ulcers, when occurring on the eyelids, were caused by inoculation of the virus in the mouths of the excretory canals of the Meibomian glands. If the initial lesion is on the edge of the lid, the induration may extend upward some distance upon the tarsus. This is also a prominent symptom in the gummy infiltration of the lid, and may be so great as to produce ptosis. The initial lesion here is usually very slow in its course, and resists treatment obstinately. When this is the case, it is not an uncommon thing to see constitutional symptoms appear; and these are generally cutaneous lesions, roseola, or papules; or, possibly, both almost at the same time, the one rapidly following the other. Zeissl thinks that the great difficulty in recognizing the distinct character of the lesion is to determine whether it is the initial sclerosis or the terminal lesion of syphilis—the gummy infiltration. It has been his experience, as well as that of other syphilographers, and ophthalmologists have noted the fact, that in no part of the skin of the body does induration of tissue occur so rapidly as in and around the margins of the eyelids. This is seen in a disease of the Meibomian glands known as chalazion. It seems to be a characteristic of inflammatory affections of the eyelids, to cause dense circumscribed or diffuse infiltration very rapidly. Another point of difficulty in differentiating here between the two lesions is, that both macroscopically and microscopically the initial sclerosis bears a close resemblance to the gummy infiltration which has undergone ulceration.

It has seemed to me that the difficulty of differentiation did not lie between the chancre and the gumma, but rather between the gumma, which had undergone ulceration, and some other form of ulcerated surface. If all the signs of a chancre are present, and there is the bubo in front of the ear, and perhaps an enlargement of the parotid gland, then the diagnosis is easy, though there may be early cutaneous lesions at the same time upon the body, and even on the eyelids. If the ulcer is on the edge of the lid, has a foul secreting surface, and infiltrated margin with extensive thickening of the lid, but with no accompanying glandular enlargements in front of the ear, then the lesion is not a chancre, but an ulcerated syphilide—whether papular or tubercular, we cannot say. The character of the coexisting skin-lesions will also probably be of aid to us here; for, if they belong to the later manifestations of syphilis, the ulcer is not the initial lesion.

The exanthematous lesions of the eyelids may be as various as cutaneous lesions elsewhere on the body, though they are usually of the papular or tubercular variety. A syphilitic eruption very rarely occurs on the conjunctival surface of the lids, though on the cutaneous surface it is quite a common accident. The result may be, and very frequently is, an ulcer, the centre of a papule or tubercle, breaking down and sloughing on the surface. They may occur at any age, and at almost any period of constitutional infection. According to Bumstead, syphilitic eruptions on the eyelids are more frequent in infants affected with congenital syphilis than in adults; and here the eruption is apt to be pustular. The pustules run into each other, coalesce, break, and leave the skin excoriated and red. Lancereaux ("Traité historique et pratique de la Syphilis," Paris, 1874) recognizes two classes of syphilitic lesions of the lids, besides the local initial sclerosis. What he considers secondary lesions of the conjunctiva and lids differ but little, if at all, from the general cutaneous eruptions with which they frequently coexist. But, in the later stages of syphilis, he says that the cutaneous surface of the lids is often the seat of an ulcerating, serpiginous syphilide, which may cause great destruction, and by cicatricial contraction give rise to entropium.

The eruption may be confined to the skin, or may involve the entire thickness of the lid; in other words, it may extend superficially either along the margin of the lid or away from it, or it may extend into the tissues of the eyelid, while spreading very little upon the surface. Syphilitic papules, though they may be of rapid growth and great size, do not extend very deeply into the tissues, and the destructive process is consequently superficial. But a tubercular syphilide is more distinctive in its action; and, if not seen early, the general infiltration is so marked that we have, practically, to deal with a diffuse gumma. According to Zeissl, the diseased foci occurring in the eyelid grow much larger and more rapidly than on the neighboring skin. Thus a syphilitic papule may extend over the entire lid, and even so strongly resemble a gumma that we can only distinguish one from the other by observing accurately the coexisting symptoms. If these are late manifestations, then the lesion of the eyelid is a gumma; if not, it is a papule. Later on, another fact helps us in diagnosis: when a gumma disintegrates, it generally leaves a large, permanent loss of substance, while the papules here cause a very superficial defect, or else none at all.

The tubercular syphilide, with its accompanying symptoms, presents the same characteristics as the gumma, and microscopically they are one. Occurring, as these lesions do, most frequently on the face, they are not uncommon on the eyelids. They have no particular shape or arrangement here, and are not symmetrical, symmetry, as a rule, being noted only in the earlier diffused syphilitic eruptions. As before stated, they *may* ulcerate superficially, but generally the ulcer is deep, looking like a punched-out cavity with uneven edges, irregularly crescentic in shape, covered with a reddish-gray deposit, or a brown crust. In one instance I have seen a papillary formation spring up from this ulcerating surface. Kaposi (" Die Syphilis der Haut," iii. Lieferung, Wien, 1875) defines the tubercular syphilide as " an eruption characterized by the formation of tumors of the skin (Knoten), varying in size from a pea to a walnut, or even larger, round, firm, of an elastic consistency and peculiar course." Their original site is either the corium and papillary body of the skin, from which they extend to the subcutaneous cellular tissue, or else they begin in the latter and spread to the former. This difference in origin Kaposi regards as of importance in determining the subsequent size and appearance of the nodules, and the results of their metamorphosis. Another point of practical interest is the differentiation of the tubercular syphilide, according to the way in which involution occurs, whether by absorption or by disintegration and ulceration. The cutaneous syphilide is only slightly tender on pressure, while the subcutaneous is apt to be painful. The latter has a flattened top, instead of being perfectly round. Kaposi has seen deep destruction, contraction, and distortion of the eyelids, following ulcerated tubercular syphilides, and regards these results as not uncommon.

These nodules may occur on any part of the external surface of either lid, but are usually found near or on the palpebral margin. They, as well as the more diffuse gummata, may disappear by absorption, or may disintegrate by retrograde metamorphosis. In the latter case the cuticle becomes thinned, assumes a yellow color, ruptures, and part of the contents, that which is fluid or semi-fluid, exudes. The nodule has become an ulcer, which discharges lightly, extends sometimes slowly, sometimes rapidly, the edges become undermined, and then the serpiginous course is subcutaneous, the surrounding areola broadens, becomes very dense, and is of a dusky-red hue, and the base or bottom of the ulcer is foul, grayish-red, and covered more or less by the discharge. When the process has been stopped and healing has commenced, the ulcer assumes a healthier appearance, the areola becomes lighter in color and less extensive, and finally a cicatrix is formed with central depression and peripheral pigmentation, or there is left a decided cavity in its centre if the destructive process had penetrated deeply beneath the true skin. If the nodular infiltration began in the subcutaneous areolar tissue, or if, as is very commonly the case, several tubercles have coalesced, either before or after the ulcerative stage, great loss of substance occurs, the healing process generally goes on under a crust or scab, and then there is a distinct cavity left behind.

According to Neumann, the pathological products occurring in the skin, as a consequence of syphilis, are cells which cannot be distinguished histologically from the products met with in acute and chronic inflammation. Sometimes the growths are in the superficial strata, and sometimes, as in gummata, in the deeper layers and subcutaneous tissue. These elements show, microscopically, neither in their beginning nor course, any difference from other pathological processes. Neumann regards them as merely of significance in giving an insight into the morbid products set up by the process. He also considers that the anatomical change in a tubercular syphilide is like that met with in the chancre. The rete Malpighii, papillæ, and corium, become filled with cells—the true granulation tissue—and large numbers of these cells occur between the fat-globules of the panniculus adiposus and in the subcutaneous connective tissue. The latter is swollen, its meshes widened and filled with cells. The deep-lying tubercles contain in the middle a fluid, gummy-like mass, consisting of small cells and fatty detritus.

The ulcerated tubercular syphilide must be distinguished from lupus and epithelioma, both of which diseases are not uncommon on the eyelids. If care be taken, no other ulcerative lesion of the lid can be confounded with it. Epithelioma begins almost always in the skin, and is long confined to it. It has two stages—the tubercular and the ulcerative—like the syphilide, but it rarely occurs before middle life. In epithelioma, the degree of induration is more considerable, and the quantity of indurated tissue much greater. The pain is here usually severe, and distinctly lancinating. The discharge from the ulcerated surface is apt to be offensive in epithelioma. The latter is further to be distinguished by the history, the absence of signs of constitutional syphilis, and the failure of mercury and potass. iod. to effect a cure. It will also help us, in our differentiation, to bear in mind the varieties of epithelioma. It may be flat, nodular, or deep. The *flat* variety is of slow growth, soon excoriates, is of long duration, and the loss of substance is slight, for, as new deposits occur at the periphery of the ulcerating surface, the centre cicatrizes. In the *deep* kind the infiltration spreads deeply, and may involve the tissues extensively before any ulceration takes place.

A tubercular syphilide is not likely to be mistaken for lupus erythematosus, for the latter extends slowly, and never suppurates or ulcerates. In lupus vulgaris the nodules are softer, of slow growth, and usually limited to one place. Lupus generally heals with a diffuse, white scar. It usually appears first in childhood, while the tubercular syphilide is rarely seen before adult life.

In the nodular stage, before ulceration has occurred, a tubercular syphilide might be mistaken for acne indurata, and here the history and coexisting symptoms must help us.

Gummata of the eyelids, when confined to the skin or edge of the lids, are not uncommon; but, when met with on the conjunctiva alone, or when involving the tarsal cartilage, are extremely rare. According to Neumann, the gumma is distinguished by a dense, board-like thickening of a part of the edge of the lid extending upward, and often causing ptosis. The skin of the lid is dark-red or reddish-brown. Zeissl regards this lesion as one of the terminal symptoms of syphilis, when there are no longer any moist cutaneous or mucous papules, and when the initial sclerosis has entirely disappeared. But, of the two cases he cites from Arlt's clinic in Vienna, in one there were enormous desquamative papules with ulcer of the lid, and in the other traces of papules on the skin, with lesions of the anterior commissure of the vulva, nymphæ, and labia majora. Though it is probably correct to regard a gumma as among the later manifestations of syphilis, yet we must not be blind to the fact that there are frequently coexisting symptoms, and that sometimes the gummy infiltration follows hard after the initial sclerosis.

As before stated, a gumma of the conjunctiva is extremely rare; but Hirschberg has lately reported a case where the gumma had ulcerated, the ulcer being the size of a pea, with hard, infiltrated, yellow base, and eroded edges, resembling an infiltrated Meibomian gland which had burst upon the conjunctiva.

Infiltration of the cartilage of the lid is still rarer, and I know of but four cases which have been published. These are all by Magawly, and a report of them may be found in the *St. Petersburger Medizinische Zeitschrift, Band XII*, 1867, p. 219, and in the *Jahresbericht über die Leistung und Fortschritt in der gesammten Medizin für das Jahr* 1867, *Band III.*, p. 502. These were characterized by an indolent infiltration with thickening of the palpebral cartilage, occurring in syphilitic patients, and in which the skin was not involved. Reference is also made to them by Bäumler, in his "Monograph on Syphilis" in Ziemssen's "Cyclopædia."

When these gummata are nodular and isolated, they are one and the same thing as a tubercular syphilide. It is only when the infiltration is diffuse, and involves a great part or the whole of the eyelid, that it is necessary to distinguish between them. Where we meet with a case of diffuse infiltration, the whole lid is swollen, particularly along the ciliary margin. The ptosis is more or less complete, and the action of the orbicular muscle is very imperfect. This is particularly noticeable when the infiltration is in the lower lid. Wedl has made a vertical section of such an eyelid, and examined it microscopically. He found that the infiltration depended upon a growth of elements whose round nuclei, of varying size, were arranged in strata and groups. The proliferation reached from the corium downward into the subcutaneous cellular tissue. The fibres of the orbicularis, or sphincter muscle of the eyelids, were surrounded by nuclei, which could be followed as far as the hair-bulbs of the cilia. The same process had attacked the cartilage. The surface of the Meibomian glands was covered with nuclei, and in the interior was a mass of large and small drops and detritus, the remains of the cell-lining.

Gummy infiltration of the eyelid may be acute or chronic. After the appearance of several tumors like chalazia on the edge of the lid, which may or may not have been preceded by pain, the skin grows red and shining over them, and the nodules may ulcerate within 24 hours after their appearance. The ulcer is deep, painful, the entire lid very much swollen, and the ulcer spreads rapidly, so that in a few days the lid is perforated. In the chronic form there is little or no pain. The lid-margin becomes changed into a large ulcer with great thickening and a dusky, red color of the lid. Usually other signs of syphilis are present, such as glandular enlargements, periosteal infiltration, and nodes.

Michel says that in some cases the affection of the eyelid is the first constitutional symptom to make its appearance. This I have not seen, though the gummata of the lid sometimes appear soon after the initial lesion, simultaneously with other cutaneous lesions. Michel also calls attention to the fact that, after such an ulceration has cicatrized, the cilia are completely wanting and never grow again; a result to be expected from the localization of the destructive process.

The following four cases represent syphilitic infiltration and ulceration of the eyelids, involving both the cutaneous and mucous surfaces, and originally were localized deposits, as in the tubercular syphilides:

Case I.—Man, aged thirty-five, blacksmith, first seen April 6, 1874. In January of the same year a small lump had made its appearance on the cutaneous surface of the left upper eyelid, near the external angle, and some distance above the ciliary margin. This grew rapidly larger and soon ulcerated. About two weeks before I saw him a similar swelling made its appearance on the ciliary margin of the same eyelid near the inner canthus, spread very rapidly, and ulcerated on the fourth day. The discharge from the two ulcerating surfaces had been slight, but the second one caused a great deal of pain, for which the patient sought relief. When I saw him, the first ulcer was nearly circular in shape, very shallow, not reaching as deeply as the tarsal cartilage, about four lines in diameter, and had extended upward and outward toward the orbital margin, instead of downward toward the edge of the lid. The margin of the ulcer was, however, dense and infiltrated, and raised about a line above the surrounding surface. The surface of the ulcer had a reddish-gray color, and there was no sign of burrowing. The second ulceration proved to be of a different character. In the ordinary position of the lids, the ulcerating surface extended along the margin of the lid about three lines, with its inner end just at the lachrymal punctum. Its edges were red, infiltrated, and considerably elevated. It did not extend upward upon the external surface of the lid, but, on everting the lid, the ulcer was found to reach from the margin nearly to the *cul-de-sac*, and was about an inch long by three or four lines broad. The base was hard, the surface a dirty white, and the edges infiltrated and elevated. In the inner palpebral surface the ulcer not only involved the whole thickness of the conjunctiva, but also extended into the tarsal cartilage. The whole lid was red and swollen, and the cornea began to show signs of pannus.

This patient had had the primary lesion 15 years before, and had suffered severely from constitutional syphilis. There were deep cicatrices on the tonsils and posterior wall of the pharynx, marks of old cutaneous lesions on his forearms and legs and scalp, and posterior synechiæ in one eye. He had also suffered severely from periosteal rheumatism.

The lesion upon the external surface of the lid in this case was probably an ulcerated papular syphilide, from its superficial extent and slight depth. The other lesion, involving the edge and conjunctival surface of the lid, had probably been a gummy infiltration of lid and conjunctiva, which had rapidly broken down and ulcerated. It is not known whether it commenced in the conjunctiva, or at the margin of the lid, in the vicinity of the mouth of the Meibomian gland-ducts.

The patient had probably never submitted to a proper course of anti-syphilitic treatment for a sufficient length of time, for, though the primary lesion had been contracted 15 years before, constitutional symptoms were continually occurring. The treatment advised here, and carried out for nearly three months, was by mercurial inunction and potass. iod. Four drachms of ungt. hydrarg. were rubbed on the soles of the patient's feet every day—half at night and half in the morning—and ten drops of a solution of potass. iod. (ounce to ounce) were given three times the first day; and each day the dose was increased by one drop. By careful attention to the bowels, an occasional warm bath, and an omission of the inunction for four days, the ulcerated spots rapidly improved, and, at the end of the fifth week, had entirely healed. The treatment was, however, continued for nearly a month longer, in diminished doses; and, at the last, the use of the mercury was discontinued. There was no entropium here as the result of cicatricial contraction, and the loss of substance on the inner surface of the lid was not sufficient to cause any perceptible curvature of the cartilage.

Case II.—Man, aged fifty-seven, sailor; first seen April 13, 1874. About four years ago this patient had had a chancre on the inner surface of the prepuce, and since then he had suffered from alopecia, faucial ulcers, a cutaneous eruption all over his body, most marked on head and face, and an inflammation of the left eye. About 18 months ago, during an attack of iritis in the left eye, a small growth appeared on the margin of the lower lid of the same eye, near the inner canthus. This grew in size, slowly, and in about two months ulcerated. He was treated for this, and took medicine internally; and, after he had been under treatment for some little time, the ulceration began to heal, and, finally, did so entirely. About a month before I saw him a similar growth appeared about the middle of the same lid, involving mainly the margin; and this grew more rapidly than the preceding one, and soon ulcerated. When first seen, the left lower lid was swollen and reddened, somewhat everted; and about the middle of the ciliary margin was an irregular, rough ulcer, with hard base, and thick, elevated walls, with a dirty-red surface. It gave me the impression of an epithelioma, and not at all that of an ulcerated syphilide. There were some few faint cicatrices on the face, with a rather darker areola, but none of them very well marked. On everting the lid, the conjunctiva was found injected and swollen, but apparently free from any growth or infiltration, except very near the margin of the lid. There were no signs of the former infiltration and ulceration of this lid near the inner canthus. The history of the case pointed plainly to a syphilitic origin; yet the impression made was that of an epithelioma. Inunctions of mercury, two drachms daily, and fifteen grains of the potass. iod. three times a day, were prescribed, however, with such good effect, that, in less than a week, the ulcer began to heal and the surrounding infiltration to grow less. At the end of the third week the ulcer had entirely closed; and in five weeks all infiltration had been absorbed, the small amount of ectropium had disappeared, and the lid presented its normal appearance—except that it was somewhat blanched along the margin where the ulcer had been.

Case III.—Woman, aged forty-seven, married; first seen April 12, 1877. The inner halves of both lids of the left eye were occupied by a large, broad ulcer, with hard base, involving the entire thickness of the lids. The wall of the ulcer was broad, elevated, irregularly notched, and angry-looking, and the base covered by a dirty scab. The ulceration involved the canthus, and extended beyond it a short distance, on the side of the nose. The surrounding areola was broad, deep-red, and the tissue densely infiltrated. The conjunctiva of the lids was involved, but the caruncle was not touched. There were cicatrices of old ulcers upon the forehead, cheek, and neck, with a whitish, depressed centre, and brown areola, which had lasted for 8 years; and similar scars on the right side of the chest and back, which had existed for 12 years. There was an ulcer on the inner surface of the tibia, just above the ankle-joint, with hard, eroded margin, and dirty base. There was chronic pharyngitis, and disease of the turbinated bones; and there had been alopecia and ulcers in the fauces. The patient had had two still-births, and had lost a child at 3½ years of age, of some brain-disease. The edges of both lids were eroded, and the conjunctiva so thickened and roughened that the cornea began to show signs of pannus. The ulceration had begun by a general thickening of both lids "of the inner corner of the eye," as the patient expressed it, about three weeks before I saw her, and the infiltrated lids had ulcerated—first the upper one, then the lower; and then the ulceration spread somewhat rapidly in every direction. The surrounding areola of infiltration was very marked; there was ptosis, due to the infiltration, and a tendency to ectropium in the lower lid.

In this case the destruction of tissue was so extensive that there was little hope of a cure without considerable deformity, which would probably necessitate an operation for its relief. The first thing, of course, was to put a stop to the ulceration. Four drachms of mercurial ointment were prescribed daily, and this was kept up for six days. I was then obliged to discontinue its use, owing to the state of the patient's mouth. At the same time potass. iod., grs. xx., were given three times a day, and the dose increased each day by a grain. After a week's intermission of the mercury, its use was again recommenced, but in smaller quantities. On April 21st, nine days after the commencement of the treatment, there was a marked change for the better. The infiltration of the upper lid had nearly disappeared, and in the lower lid it was much lessened. The ulcer had contracted markedly, and was rapidly healing. On May 17th, five weeks after I first saw the patient, the ulcer had entirely healed, the infiltration of the lids had disappeared, the conjunctiva and skin had become smooth and natural in appearance, and there was not a sign of any abnormal curvature of the lids, nor any deformity. There was no cicatrix left here, as there was on the forehead, where the process had, no doubt, extended more deeply.

CASE IV.—Man, aged twenty-two, bartender; first seen October 11, 1877. The left upper eyelid was reddened and swollen; there was partial ptosis, some muco-purulent discharge, and considerable injection of the eyeball. On everting the lid there was seen a large, shallow ulceration, with elevated, dense white margin, and dirty-gray base, extending through the conjunctiva to the cartilage, and situated on the nasal half of the lid. It reached from the *cul-de-sac* nearly to the margin of the lid below. Near the external angle of the lid there were three small ulcers, in appearance resembling the larger one. The edges of all four were irregular and ragged, and the intervening spaces of the conjunctiva were injected, and secreting. The whole lid was somewhat infiltrated, but not densely so. The patient had had the initial lesion 14 months before, which had not healed for nearly three months. During this period a scaly eruption appeared all over his body; and at the same time a pustular eruption appeared on his face and chest. The left eye became inflamed about seven weeks before I saw him, but there has been very little pain, and not much secretion. When first seen, there were a number of large acne pustules on the face, neck, and arms, and the patient stated that there had been a number of small ones on both eyelids of both eyes. These had disappeared, however, and the cutaneous surface of the lids was fairly smooth and without scars.

As regards the conjunctival lesion, it is not certain how it began; but there was probably a localized infiltration at some point, which ulcerated very rapidly before the infiltration had spread deeply, and then the ulcer spread superficially. The smaller ulcers, near the external canthus, were later in making their appearance, and had not yet had time to coalesce, while the larger ulcer had probably resulted from the union of several small ones. The wall of infiltration surrounding the ulcer was but slight, but the immediate elevated margin was very dense and hard. This patient recovered, but the disease was very obstinate in resisting treatment. Mercury had to be given very carefully, in small doses, and at times intermitted, and potass. iod. was not assimilated in large doses until after nearly two months' treatment. The patient was very much emaciated, his skin dry and rough, and he had a febrile movement every evening, his temperature rising to 102°. Quinine, ferri et potassæ tartras, and cod-liver oil, gradually improved his general condition; and when the potass. iod. could be taken in large doses, the improvement was more rapid. The conjunctival ulceration finally healed, but has remained rough and uneven since. There was some tendency to entropium left behind in this case, so that, eventually, an operation will be needed to restore the eyelashes to their normal position.

Clinical Lecture.

Laceration of Perinæum and Cervix; General Subinvolution; Procidentia Uteri. College of Physicians and Surgeons, New York, Clinic of Prof. T. Gaillard Thomas, for Diseases of Women. Reported by P. Brynberg Porter, M. D.

Gentlemen: The chief interest in the history of the first patient whom I shall show you to-day lies in the fact that there is such a serious condition of affairs present, and yet so few symptoms from which the woman suffers. "How long have you been sick, Mrs. H.?" "Four years." "What have you complained of?" "I have the falling of the womb." You see, she has given us a diagnosis, instead of telling us of her symptoms; but, when a prolapsus uteri has reached the third degree, it is easily enough recognized by the patient herself. She really has procidentia, or what I prefer to call the third degree of prolapsus uteri. The whole of the uterus, the greater part of the bladder, and a considerable portion of the rectum, are completely outside of the body. Yet there are astonishingly few symptoms complained of, as we shall find out upon asking a few more questions; the woman's chief trouble arising from the mere mechanical inconvenience of having the uterus and other organs in such a position. "Have you any pain?" "No, sir." "None at all?" "Well, I have some pain in the back sometimes." "Anywhere else?" "In the side." "Do you stay in bed part of the time?" "Oh, no; I have to work all the time." "What kind of work do you do?" "All sorts of house-work, washing and ironing, and attending to the children." "What time do you get up in the morning?" "Six o'clock." "And what time do you go to bed?" "Ten o'clock." "Do you lie down through the day?" "Never." Well, that is a pretty good day's work, and we thus see that the patient is capable of fulfilling all the requirements ordinarily demanded of the mother of a family in her class of life. "Are you regular in your monthly periods, Mrs. H.?" "Yes." Now, this is the simple history of a woman who has complete prolapsus of the uterus, bladder, and rectum. This lack of symptoms is characteristic of this condition, and I desire to impress this fact strongly upon you.

It is the general rule, though, of course, we sometimes meet with exceptions. This patient is unusually reticent, so that it is difficult to get at the whole history of her case; but I think that, if she had proved a little more communicative, we should have ascertained the fact that, for the first year after her trouble began (you remember, she has been complaining for four years), she suffered a great deal more pain than she does at present. If this was the case—and I have little doubt of it in my own mind—it was due to the resistance which the ligaments and other supports of the uterus offered to its prolapsus. After that they gave up the contest, and the patient no longer suffered acutely from the strain upon them. This is the ordinary rule in such cases.

When I made my physical examination, the first point to decide was, whether I could discover anything about this woman, who is unusually strong and healthy, to account for the condition here present. As I have told you, I found that the uterus was prolapsed, and the sound passed for fully five inches into its cavity. As we would naturally suppose, the organ is completely engorged with blood, on account of its misplacement. This is because the circulation is interfered with, the arteries still bringing a large amount of blood to it, while the return of the same through the veins is impeded. As a result of this, there is a marked hyperplasia of the connective tissue of the organ, which increases its size and weight. It is true that the uterus seems larger outside of the body than it would be in its natural position; but, even if it were restored, I am confident that it would measure at least four inches. It is more congested here than is usual in these cases, and this is due, in part at least, to an extensive laceration of the cervix, which I found to be present. There is an internal os, but the external os has been completely obliterated. Now, has this anything to do with the case? Yes, not a little. At the time of the birth of her first child this laceration no doubt took place, and, as a result of it, there was in all probability more or less septic absorption through the freshly-torn surfaces, and involution was thus interfered with. If an examination had been made at the end of two months after her confinement, I believe that the uterus would have been found as large as it is to-day. So we have here one of the causes of prolapsus. What is that? An increase in the weight of the uterus. It is possible that subinvolution might have resulted from some other cause, but it is altogether probable that there would have been no subinvolution if there had been no laceration of the cervix. The uterine ligaments are perfectly competent to support a uterus of the natural size and weight, but not to support an organ of the size and weight of this one.

Not only this, however: the uterus was constantly engorged with blood. And this was not all: for, on examination, we find that this uterus has also been dragged down by a subinvoluted vagina. The latter condition is the result of a rupture of the perinæum almost through the *sphincter ani.* The perineal body, therefore, was destroyed, and the vagina, instead of growing smaller day by day, was left a large and lax canal. As a consequence of this destruction of the perineal body, the posterior wall of the vagina became changed from the shape of the letter C (Fig. 1) to that of the letter S (Fig. 2), as I have so frequently had occasion to explain to you in connection with similar cases.

The vagina thus fell forward, and, instead of being a uterine support, as it normally should, became a uterine tractor. The rectum therefore presented itself in the vagina. Now, what supports the bladder? Nothing. It has fallen, in fact, to a great extent out of the body. This is due to traction upon it by the anterior wall of the vagina, which results from the loss of the perineal body.

FIG. 1.

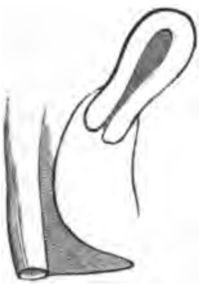
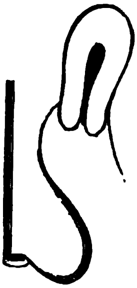


FIG. 2.



Suppose, now, that you were going to treat this patient: what would you do—put in a pessary? Yes, if you wanted to fail in relieving her. You might employ Meigs's ring, Hodge's lever pessary, or, perhaps, an instrument with external supports; and, having adjusted it, you would probably tell your patient to come back in a week. At the end of that time the pessary would be either driven out of the body, or else it would have done serious injury to the vaginal walls. If such should be the result, you should not cry out against all pessaries as being useless and injurious, as the manner of some is; but rather confess that the fault was not in the pessary, but in the individual who was so unwise as to employ it in such a case. Just reflect for a moment on how great the combined weight of the bladder, rectum, uterus, and superincumbent intestines must be, and then think on putting in a mechanical contrivance with the idea of holding up such a mass as that! Why, you would not find it an easy thing to support it even with the hand.

Immediate treatment by means of pessaries, then, is that which you ought not to adopt. What I should advise, would be such a plan as the following: First, I would endeavor to remove the main cause of the displacement—the increased weight of the uterus. With this intent, I would confine the patient to bed, replace the uterus, and have her use warm vaginal injections for two or three days. At the end of this time I would tampon the vagina with carbolized cotton, saturated with warm water and glycerine. This would cause a free watery discharge from the cervix and vagina, relieve existing congestion, and so prepare the patient for subsequent treatment. After a week had passed I would pare the edges of the lacerated cervix, approximate them by sutures, and by the same procedure restore the uterus to its normal shape, and remove from it a source of local irritation. This having been done, the uterus would rapidly diminish in weight. The effect would be like that of removing a foreign body which had remained in living tissue for some time; the pain and irritation being relieved, and the circulation once more equalized. One of the most constant results of severe laceration of the cervix is well-marked nervous derangement. Even now your patient would be by no means cured; but at the end of eight or ten days she might get up, and by that time you should put in a pessary, such as I show you here, which would, in the first place, keep the uterus in position, thus preventing congestion, and, secondly, prevent traction by means of the vagina. You notice that it is made of hard rubber, and consists of a cup, into which the cervix fits, and a stem which has two branches. One of these, when the instrument is in position, passes anteriorly toward the symphysis pubis, and the other posteriorly toward the coccyx; and they are both attached to an abdominal belt by means of elastic bands. Unlike most pessaries, which press upon the vaginal walls for the whole of each day, it could be taken out at night, and then, a bed-pan having been placed under the hips, a copious injection of warm water, containing some such astringent as gallic acid, tannin, or sumac (the latter being a very excellent agent for such purposes), should be employed. On account of the size and shape of the cup, into which the cervix should fit quite snugly, such a pessary would be very unlikely to create much irritation. By such means as I have indicated, patients are frequently rendered so comfortable, and free from all annoyance on account of the prolapsed uterus, that they are perfectly content with the result, and will not consent to have anything further done for them.

And so they will go on wearing the instrument more or less constantly for years.

But now let us suppose that no such good results have been obtained. In that case, we can effect a great deal by restoring the perineal body, or, in other words, performing perineorrhaphy. This alters the shape of the vagina, changing its deformed posterior wall back from the form of the letter S to that of C. The only thing that would then remain to be done would be the narrowing of the anterior wall of the vagina by means of elytrorrhaphy. This, however, is a more difficult operation, and one requiring more special skill than the ordinary general practitioner is possessed of. Should it be successfully accomplished, a complete cure will have been made. But, as I stated before, many cases do perfectly well without these operations; and, as a general rule, it is only necessary to remedy the laceration of the cervix, put the uterus in position and keep it there, either by restoring the perineal body, or employing such a pessary as I have described. The great advantage of this instrument is that it can do no injury to the patient. I have recently been asked by a student, whether the operation for laceration of the cervix does not diminish the calibre of the cervical canal. It does not, for the reason that, in paring the edges, a very small portion of tissue is removed; and one of the advantages of the operation is, that you are able to make the canal just as large or as small as you desire. After the operation, women are found to give birth to children with exactly the same facility as before.

Double Anteflexion.—The next patient is Catherine D., a native of Ireland, aged thirty-four years. She has been married six years, but has never had either any children or miscarriages. As this is a very striking case, I should like to get the history of it from the woman herself, if possible. "How long have you been sick?" "I have suffered from a great pain in my back for eight years." "You had it, then, before you were married?" "Yes." "It is a severe pain, you say?" "Yes, very severe." "What else do you suffer from?" "I have a constant desire to pass water." "Do you have to get up at night to pass it, and, if so, how often?"

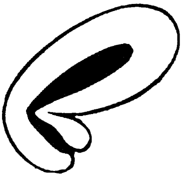
"Sometimes I have to get up as many as eight times, and sometimes not so often." "About how many times, as a general rule?" "Twice." "What else do you complain of?" "I have indigestion, with heart-burn, and pain in the pit of my stomach; and sometimes headache." "Do you have your monthly periods regularly?" "I never had them till I was in my twentieth year, and my sickness came on me for the first time when I was on the ocean, on my way to this country." (The last fact, which I did not know of before, is a point of some importance in the case.) "Do you have the whites at all?" "Yes." "How long have you suffered from them?" "Twelve years." "Do you have much pain at the time of your monthly sickness?" "Yes, it is very severe; and I feel it in my breast as well as in my stomach." (By "stomach" such patients always mean the abdomen.) "Is the pain ever so severe that you have to go to bed on account of it?" "I always have to do so on the first day when it comes on." "One thing more: Is it a matter of regret to you that you have never had any children?" "Yes." "Then you would like to have children?" "O yes; very much indeed." As you have heard, gentlemen, our patient is not an American! The frequency with which American women at the present day avoid maternity has become such a wide-spread evil, that it has called forth a pastoral letter from one of the Episcopal bishops—Bishop Coxe, of the diocese of Western New York. The results of such a course are most disastrous; and when I see young women marrying, and from the very first declaring that they will never become mothers, I cannot but regard such a state of feeling as a great national calamity. In former times this was not the case; and a few years ago it was not at all an uncommon thing to find very large families even in the highest circles of society. But now, if any of you will try to think over all the families of your acquaintance in which there are 10 or 12 children, either in the city or country, I am confident that you will be able to call up but very few of them indeed.

But to return to our patient. Now, here is a married woman who is very anxious to have children, and yet is sterile. Evidently there has been, and is, something wrong about her pelvic organs. In the first place, the catamenia did not make their appearance until she was nineteen, when they ought to have done so at the age of fourteen or fifteen then it was at a time when she was subjected to the influence of a long sea-voyage. Secondly, when she began to menstruate she suffered such pain that it has always been necessary for her to go to bed for at least one day at each period. As she has been a servant for the greater part of the time since she has been grown-up, we can easily surmise that it was not an imaginary pain which affected her thus. In the third place, she has now been married six years, and has never had any children. Fourth, she has a fixed pain in the back between her menstrual periods. Fifth, she suffers from constant irritability of the bladder. Sixth, she has leucorrhœa, headache, etc., which are corroborative signs of uterine disorder.

To any one who will make a vaginal examination of this patient carefully, and with the real desire to find out what is the precise difficulty, the whole case, with all its past history, will at once become perfectly clear and simple; while a person who makes the examination in a routine manner, merely because it ought to be done as a matter of course, might discover absolutely nothing. When I introduced my finger into the vagina, the first thing that I noticed was that the cervix was markedly out of position, being bent forward to an unusual degree. The uterus, I found, was completely doubled up, with the body lying upon the cervix; while the whole organ was small, as if it had never been fully developed. Then, placing the patient upon the side and introducing the speculum, I attempted to pass the probe, bent to a curve that corresponded with the picture of the uterus which I had formed in my mind, but for some little time failed, on account of the extreme flexion of the organ. Finally, however, I succeeded in passing it, and then the diagnosis was confirmed. I next endeavored to straighten and restore the uterus to its normal position, but found it was impossible, either with the hand or the uterine repositor. The case was, then, one of anteflexion in a very aggravated form, constituting what is known as double anteflexion.

Three varieties of anteflexion are recognized: In the first, the neck is in the normal position, but the body is bent forward.

FIG. 3.



In the second, the body is in correct position, but the neck is displaced.

In the third, both the neck and body are bent out of the normal position, as in the present instance.

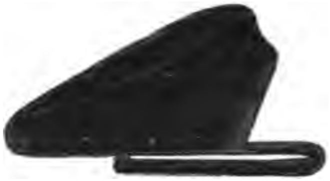
In these diagrams, the two lines meeting each other at different angles represent the axes of the neck and body. Fig. 1 shows the relative position of the two in the normal uterus, and the other three exhibit the three degrees of anteflexion. From this it will be readily understood why such a case as this should be called *double* anteflexion.

Now, when did this anteflexion occur? I do not know exactly; but, as the patient does not remember suffering from any severe fall or injury, it is altogether probable that it began very early in life. The uterus is normally a little bent on itself, and before the age of puberty it begins to grow more or less rapidly. In a certain proportion of cases it is found that this development takes place unilaterally to a great extent; and here the posterior wall seems to have advanced in growth, while the anterior wall remained comparatively insignificant. By the time the age of puberty had arrived, the one was comparatively hypertrophied, while the other was atrophied. This case furnishes a specimen of what is known as congenital anteflexion.

I am now done with the etiology and diagnosis of the case, but wish to say a few words about the prognosis. In any case where a patient possesses ordinary intelligence, if you cannot cure her, do not pretend that you are able to do so. I do not mean that you are to say, brusquely, "Your case is incurable," and then summarily dismiss her; but, after you have seen her two or three times, and have examined her sufficiently to get a perfectly clear idea of the case, do not hold out any bright prospect of recovery. Tell her that you are perfectly willing to do what you can for her, but that you do not think you can cure her. The difficulty in the present instance is, that the state of affairs which I have described has probably existed since the patient was five years old. If I could put in a uterine repositor, and by this means straighten up the organ, I am sure that I could cure her. But it cannot be restored by this instrument, and the attempt to employ it gives so much pain, that I am afraid to go on with it. The anterior wall is so much atrophied that there is great danger of injuring, or of even breaking through it.

Is there nothing, then, that will do her any good? Possibly an incision through the posterior lip of the cervix, and the cutting through the little projecting shoulder on the anterior wall of the canal, might be of some service; but this operation is a very delusive one, and not infrequently fails. It might perhaps diminish the pain which the patient suffers at her menstrual periods by giving a freer escape for the blood; but it is very doubtful. Cutting through the cervix is cutting through fibrous tissue, and the parts are exceedingly apt to unite again, to say nothing of certain dangers connected with the operation, which I cannot now speak of. Still, without this, in the course of a year or 18 months of treatment, I believe that I could accomplish, not the cure of the case, but the relief, to a great extent, of the pain in the back, the dysmenorrhœa, and the leucorrhœa. How would this be done? Every time that the patient came to me I would introduce the uterine repositor, and straighten the canal just a little; while, in the mean time, she should wear a pessary such as I show you here (Dr. Thomas's latest anteversion pessary). The cervix fits into the hard-rubber ring, and is thus held in a splint, as it were, while the body is supported by its anterior portion, which, you notice, is much higher than the posterior, and contains a little depression, in which the uterus rests. In this way the uterine canal would gradually become somewhat straighter, and the congestion now existing would be greatly relieved. You will perceive, however, that at best the treatment is only palliative, and that we cannot hope for complete cure in such a case as this.

FIG. 4.



Translations.

The Hereditary Transmission of Syphilis. By Dr. M. KASSOWITZ, Attending Physician to the General Hospital for Children, Vienna. 1876. Translated for the NEW YORK MEDICAL JOURNAL by Milo A. Wilson, M. D., Clinical Assistant to Professor of Dermatology, Bellevue Hospital Medical College, etc.

(*Continued from September*, 1877, *Number*.)

IX. *Intensity of the Heredity.*—That there are different degrees in the inheritance of syphilis; that in a spontaneously disappearing syphilis of the progenitors a gradual and constant decrease in the intensity of the poisoning is observed in the progeny; that these different grades of the poisoning manifest themselves in the earlier or later interruption of the pregnancy, in the greater or lesser degree of viability, and the earlier or later outbreak of syphilis in the children born at term—all these conditions have been, in the former portions of this work, repeatedly spoken of and casually discussed, according as the opportunity therefor presented itself. But, apart from the theoretical side of the question thus far specially referred to, these conditions have also an eminently practical importance, and deserve for this reason alone an extended and detailed consideration.

The Law of the Spontaneous Gradual Decrease (Weakening) of the Intensity of Syphilitic Heredity.—This law, which had already been mentioned by many writers, and extensively discussed by several (Diday, Roger, 1865), found a positive confirmation in all our observations. The regularity with which this gradual decrease repeated itself in almost all of my 119 tabulated cases, and also in many others not included by reason of their incompleteness, is simply surprising; and the few for the most part unimportant exceptions, if even they do exist at all, give at least, by their relatively small number, but a further confirmation of the general rule.

In consequence of the importance of this subject we will not be illiberal in regard to examples, and will begin with a *complete* series, in which the beginning of the transmission power, as well as its extinction, was markedly pronounced.

CASE XIX.—*Mother alone inoculated after the Birth of the First Child; the entire Succession of Children up to the Extinction of the Power of Transmission.*

1. 1863.—A girl, always healthy.

Three months after the birth of the child the mother contracted syphilis, and was treated in the hospital.

2. In the fall of 1865.—A boy, still-born in the seventh month.

3. 1866.—A boy, born in the seventh month; lived five hours.

4. 1867.—A boy, still-born at term.

5. 1869.—A boy, born at term; during the first week had an eruption over the whole body, which remained until his death at four months.

6. 1870.—In January, a boy at term; fell ill at six weeks with a maculo-papular exanthema; relapse at fifteen months; is now badly nourished, rachitic, with the characteristic physiognomy.

7. 1874.—In February, a *healthy* boy.

This case, on account of its completeness, may be regarded as a typical one. In most of the remaining cases the series under investigation forms only sometimes a greater, sometimes a lesser fragment, in a supposed perfect succession; because in one case the beginning, in another the end, occasionally both the beginning and the end, are equally wanting. But even in these fragments the great regularity in the decrease is unmistakable.

We divide the cases into several categories, according to the different conditions of the parental disease.

A. *Father inoculated before Marriage; Mother healthy.*

CASE XX. 1. November, 1871.—A girl, born in the eighth month; very feeble; lived one day.

2. End of 1872.—A boy, still-born at term.

3. February, 1874.—A boy, born at term, apparently healthy; when two weeks old had coryza, maculo-papular exanthema, and diffuse syphilitic infiltration of the skin upon the face and soles of the feet; in the third week had swelling of almost all the first and second phalanges of the fingers, and several of the metacarpal bones. He recovered.

CASE XXI. 1. 1870.—A premature birth, dead, in the eighth month.

2. 1872.—A girl at term; had a general exanthema on the eighth day; was cured.

3. 1874.—A girl at term; in the seventh week outbreak of a maculo-papular eruption; infiltration of the skin upon soles of the feet; recovered.

CASE XXII. 1. 1869.—A female child, born prematurely in the eighth month, with spots and vesicles; lived one day.

2. 1870.—A boy, born nearly at term; died just after birth.

3. 1871.—A boy, had an eruption at the end of a week; lived four months.

4. 1872.—A female child; fell ill also in the second week; lived six weeks.

5. 1873.—A boy, born healthy, but fell ill in the third week with coryza and a macular eruption; soon thereafter had infiltration of the skin of the toes. Later he suffered from an obstinate pustular eruption and furuncles. He is now two years old, strong, slightly rachitic.

CASE XXIII. *Regular Succession interrupted by an Interval of Six and a Half Years.*

1. Middle of 1866.—A girl, still-born in the seventh month.

2. Beginning of 1868.—A boy, still-born in the seventh month.

3. October, 1874.—A female child, healthy at birth; at the end of the first week had a macular eruption over the whole body; severe relapses with spots and papules at the third month; extensive diffuse infiltration of the upper lips, the skin upon the hands and feet. After her recovery there remained, for several weeks, isolated suppurating subcutaneous tubercles. Since then healthy, in consequence of mercurial treatment.

Here also, among many others, belong the very marked series in Cases III., IV., IX., X., and XVIII.

B. *Father inoculated after Marriage; Mother remains spared.*

CASE XXIV. 1. 1867.—A girl, died at three months with intestinal catarrh; was otherwise healthy.

During the lying-in her lover contracted syphilis, and went to the hospital, where he was treated for four months.

2. 1870.—A boy, still-born in the eighth month.

3. 1872.—A female child at term; very feeble; had a macular eruption after ten days, afterwards moist papules, and died when five months old.

4. *September*, 1873.—A girl, at birth strong and apparently healthy; had coryza at three weeks, at four weeks a macular eruption of slight intensity; at five weeks laming of the left upper extremity, resulting from painful swelling of the epiphysis of the head of the humerus. A cure was effected after several weeks; at three months had a blooming appearance; relapses in the fourth, seventh, tenth, and fifteenth months; finally condylomatous growths upon the lips and mucous membrane of the gums. Is now entirely cured.

Cases V. and VI. also belong here.

C. *The Mother alone inoculated before Marriage. See* Case XII.

D. *The Mother inoculated in a Previous Marriage; in a Succeeding Marriage with a Healthy Man gives Birth to a*

Child also syphilitic.—Case XXV. In her *first* marriage, five children all die, from two to three years old, with pulmonary diseases. Early in her *second* marriage, in 1865, the mother was inoculated by her husband.

6. 1868.—A premature birth during the seventh month, still-born.

7. 1870.—A boy, born at the eighth month; had an eruption in the first week; was treated successfully; died with intestinal catarrh at the age of nine months.

8. 1871.—A girl, fell ill also in the first week; was cured in two months, and died from bronchitis when one year old.

In her *third* marriage to a healthy man:

9. *February*, 1874.—A boy, at birth comparatively healthy; suffered in the third week with a general macular eruption; in the third month with papules and diffuse infiltration of the skin of the face. Was cured. In the tenth month, relapses, with papules upon the skin, and the mucous membrane of the mouth. Since then healthy. *See* further, Case XVII.

E. *After the Birth of Healthy Children the Father is inoculated, and by him the Mother.* Case XXVI.

One to five children live and are healthy. The fifth is born in 1866. At the end of 1866 both parents contract the disease.

6. *March*, 1867.—An abortion at three months.

7. 1868.—A boy, born living at the seventh month; the skin peeled off (according to the statement of the mother); death occurred after five days.

8. 1869.—A boy, still-born at the eighth month.

9. 1871.—A female child, born nearly at term; died in one hour.

10. *September*, 1872.—A girl, at birth seemingly well; soon afterward had very severe coryza; at three weeks a general exanthema; later very obstinate ozæna, with sinking in of the nose; very obstinate ulcerating papules; at eight months, relapses with mucous patches of the tongue and laryngitis; at two and a half years, relapses with condylomata. At present rachitic.

11. *October*, 1873.—A boy, very strong at birth; shortly before the end of the third month had a very slight, small

papular eruption, which disappeared after eight days' treatment. In the eleventh month, relapses with condylomata, since then healthy.

See further the complete series in Cases XI., XV., and XVI.

The same regularity which was observable in the series thus far reported repeated itself in the by far greater majority of my cases, in which certainly slight variations occasionally took place; as, for instance, a seven-months' premature birth *following* one at eight months, a still-born child at term *after* a living but non-viable one, and similar instances. But even greater irregularities, however, which occurred altogether in but ten of my 119 cases, never disproved the idea of the successive weakening of the heredity; because in one or two births at the most a retrogression presented itself toward the next higher grade of intensity; but on the whole, however, the law of the successive decrease, even in these *irregular series*, remains indisputable.

CASE XXVII.—*Father inoculated several Years before Marriage; Mother healthy; a Retrogression in the Second and Third Births.*

1. 1867.—A boy, still-born in the seventh month.
2. 1868.—A girl, still-born in the eighth month.
3. 1870.—*Abortion in the second month.*
4. 1871.—A boy, *still-born in the seventh month.*
5. 1872.—A boy, born in the eighth month; suffered after a few days with an extensive eruption and violent snuffles; was always feeble, and died in the third month, without mercurial treatment.
6. 1873.—A boy, born at term; at the third week had coryza, papular eruption, and infiltration of the soles of the feet; was cured in a few weeks with proto-iodide of mercury, but always remained feeble. At the end of a year was unmistakably rachitic and very anæmic, with pronounced specific physiognomy. He began to walk only after two years. No relapses.

CASE XXVIII.—*Mother inoculated early in her First Marriage, the Diseased Succession continuing during her*

Second Marriage to a Healthy Man; Isolated Retrogression in the Fourth Birth.

First marriage:

1. 1862.—A female child, still-born at the seventh month.

2. 1863.—A boy, almost at term; lived one hour.

Second marriage to a healthy man:

3. 1865.—A female child, very feeble; lived eighteen days.

4. 1866.—*A female child, still-born in the seventh month.*

5. 1871.—A girl at term, very feeble; had an eruption soon after birth; lived twenty-five days.

6. 1873.—A boy, had an exanthema at four weeks, and infiltration of the soles of the feet; at the fifth month a relapse, with a macular eruption and infiltration; at eleven months scaly papules. Since then healthy, but feeble.

7. 1875.—A healthy boy.

CASE XXIX.—*Mother inoculated One Year and a Half before Marriage; treated; Father healthy; Isolated Retrogression in the Fourth Birth.*

1. 1868.—A female child, still-born in the seventh month.

2. End of 1868.—A female child, still-born in the eighth month.

3. 1869.—A boy, nearly at term; very weak; had an eruption upon the feet immediately after birth; died in ten days.

4. 1870.—*A female child at term, still-born.*

5. 1871.—A boy; in the third week had a severe papular eruption, with formation of crusts; diffuse infiltration of the skin of the upper and lower lips, also with formation of crusts; infiltration of the soles of the feet. Later, subcutaneous tubercular growths. Cure.

CASE XXX.—*The Mother, who has a Healthy Child from a Former Marriage, is inoculated by her Husband at the Beginning of a Second Marriage. A Retrogression in the Fourth Birth.*

1. 1864.—A girl, always healthy.

The mother is inoculated in her second marriage, 1865.

2. End of 1866.—A girl, born in the seventh month, with pemphigus bullæ; lived three days.

3. 1867.—A boy, born in the eighth month, with pem-

phigus bullæ (while the mother was in the hospital); lived thirteen days.

4. 1868.—*Abortion in the fourth month.*

5. Middle of 1870.—A boy, born in the seventh month; in fourteen days had coryza, a papular exanthema, infiltration of the soles of the feet; successfully treated. A relapse at the fifth month. Is later rachitic; at present very feeble, suffering frequently from inflammation of the eyes.

6. 1872.—A boy; had a very slight exanthema in the tenth week, which was soon cured; is now healthy.

7. February, 1874.—A boy, entirely healthy.

It is evident, then, even with these irregularities, which sometimes (as in Case XV.) are induced by an intercurrent mercurial treatment, but in the other cases are based upon unknown, we might say accidental, conditions, that the law of the successive decrease in the poisoning of the progeny of syphilitics is in no way changed thereby. For, in the apparently irregular cases also, we never observe a very great retrocession—such, for instance, as non-viable premature births following a healthy child; and equally as seldom, in two births following closely upon each other, do we ever find a very marked progressive step; nor has it ever been observed, for instance, that a dead premature birth has been followed in one year by a very slightly affected or an entirely healthy child. Two such births can only succeed each other without an intermediate link, when a great number of years have elapsed between both, as, for example, in Case XXIII., where the second, still-born, seven-months' child, is followed by the birth of a third, viable, and slightly affected child, after an interval of more than six years.

This law is so universally acknowledged and established by such a large number of actual observations, that all theories which have as a foundation views to the contrary may be completely set aside as erroneous. When Sedoul, therefore, as late as the year 1848, could assert that still-born and strongly cachectic syphilitic children are inoculated directly at the time of conception, while those less severely affected, in whom the symptoms appear only late after birth, are infected first during pregnancy, so would this presuppose that always, after the birth of a single child infected in the manner last-named, a succession of premature and still-births must follow; which, as is well known, is never the case. When Bassereau (1852) asserts, later, that children whose parents at the time of fecundation have secondary syphilis are only affected superficially —on the contrary, that the children of those with tertiary syphilis have alone the deeper and severer symptoms of the inherited disease; and when Mandon (1856) expresses the same view, by saying that hereditary syphilis constantly has the character of that stage of syphilis from which the parents were suffering at the time of conception; so, again, this presupposes that, in a succession of syphilitic births, at first those superficially affected, and afterward those more intensely and deeply diseased children, must be born; and, as this is exactly contrary to the truth, these theories, from this ground alone, are untenable. When, finally, Hutchinson (1856), out of love for his theory of the gradual poisoning of the mother by syphilitic embryos, declares that the children born later are always more severely affected than the previous ones, this assertion finds in our observations the most positive refutation; and herewith, also, the theory of the chronic retro-infection of the mother amounts absolutely to nothing.

On the other hand, by reason of this great regularity in the decrease of the syphilitic heredity, and the infrequency and unimportance of the exceptions, we may presume to say that the grade of the fœtal poisoning and the gradual decrease of the intensity of the inherited dyscrasia are tolerably independent of the external perceptible appearances, which, as is well known, vary greatly in severity—consequently, independent of the recurring eruptions, relapses, and periods of latency of the parental syphilis; and that, accordingly, in reference to the severity of the inherited disease, the *age* of the parental syphilis, if even not to be relied upon exclusively, is nevertheless of by far greater importance than a greater or less degree in the intensity of the externally visible lesions of the progenitors just at the time of the procreation. Therefore, during the first years after the acquisition and apparent curing of his syphilis a man procreates, it may be year after year, in spite of a nearly complete latency, a child which already before birth succumbs to the disease; and, on the other hand, a woman affected with the most pernicious forms of inveterate syphilis can bear children in whom the inherited dyscrasia is only to a certain degree reflected, or in whom the inheritance can be entirely denied.

This law is still further of significant practical value for the decision of each special case, and I recommend, therefore, in every case of infantile syphilis, the exact and minute details in relation to the previous brothers and sisters, the time of each birth, the intervals between the same, the maturity or immaturity of the children, the further fate of each individual case, etc. These data, which in most cases are correctly obtainable, and, above all, for the reason that the questions appear to be entirely inoffensive, do not readily yield to an intentional deception on the part of the parents, afford, to a certain extent, an objective basis from which we cannot alone draw certain reverse conclusions upon the condition of the parents, the period of their inoculation, etc., but from which, also, the otherwise unreliable statements of the parents can be controlled in a very desirable manner, even upon the point last mentioned. In many doubtful cases the remembrance of the preceding births may be directly decisive. The differential diagnosis between hereditary and acquired syphilis, which, as a rule, is easily made during the first months of life upon objective conditions, may be associated with the greatest difficulty at a later period—for instance in the second year, when we find only isolated condylomata, without other objective symptoms. Should it occur that the bearer of this perplexing disease be the last member of an interrupted series of viable and non-syphilitic children in the same marriage, this alone would exclude positively hereditary syphilis in this case.

The different grades of intensity in heredity are especially noticeable in three different ways:

1. In the interruption of the normal period of pregnancy through abortion or miscarriage.
2. In the endangering of the viability of the fœtus.
3. In the viable children, shown in the time of the eruption of visible symptoms.

These three points, also, are worthy of detailed consideration.

X. *Interruption of the Normal Duration of Pregnancy* (*Abortion and Premature Birth*).—That syphilis of the parents very frequently occasions an early interruption of pregnancy, has long since been recognized, and, as already mentioned, it was regarded by Astruc (*l. c.*), over one hundred years ago, as a cause of habitual abortion. Since that time syphilitic abortion has been mentioned and discussed by most writers, but here also we find very contrary views in relation to the frequency and essential causes of the same.

Frequency of Premature Births occasioned by Syphilis.—Several observers have already endeavored to form statistics of syphilitic premature births; they are, however, all very incomplete, for the reason that they refer almost exclusively to the children of syphilitic women in lying-in asylums and hospitals. Consequently, upon the one hand, no consideration is given to the birth of syphilitic children from healthy women; upon the other hand, they were only concerned with single births of manifestly syphilitic women, consequently with children who were conceived, for the most part, during the first stages of the maternal transmission-power; while there is seldom anything learned relative to births during the periods of latency and later stages of the maternal disease.

In 99 births from syphilitic mothers, Arneth (1851) found one-seventh of the number miscarriages, and one-ninth of the children were still-born. According to Whitehead (1851), 117 out of 256 syphilitic pregnant women aborted, consequently 45 per cent. Among 80 children with congenital syphilis, Hecker (*l. c.*) found 23 to be born prematurely and decomposed. Hecker and Buhl (1861) found, in 40 children whose mothers had secondary syphilis, that 12 died before birth. Pick (*l. c.*), in 51 children of syphilitic mothers, 32 were born at term and 19 prematurely. Rosen (*l. c.*), in the Copenhagen Lying-in Asylum and Hospital together, in 161 births from syphilitic mothers, 74 were premature, therefore 46 per cent.; according to Rosen's calculation, four times as many miscarriages as in non-syphilitic pregnant women. Sigmund (1868), in two years, among 99 syphilitic pregnant women, 64 children were born at term and 35 prematurely.

The calculations already presented by me are preferable to all these, because they do not refer to single births, but to all the births, 330 in number, which resulted from 119 marriages, in which either the father, the mother, or both parents, were syphilitic. My figures exceed the others, then, not only in number, but, in what is still more important, in the variety of the material, in which the most varied conditions and stages of the parental disease are represented, as well as *all* the children procreated by the syphilitic parents.

The question, first, is, to learn in how many of the semarriages, as a general thing, abortions and premature births took place, and in how many there was an immunity. This is as follows:

I.	Father alone	syphilitic,	43	cases,	premature births	in	14	cases,	32	per ct.
II.	Mother alone	“	10	“	“	“	8	“	80	“
III.	Both parents	“	23	“	“	“	16	“	69	“
IV.	Condition doubtful,		43	“	“	“	18	“	42	“

Together, 119 cases, premature births in 56 cases, 47 per cent.

We have as a result, then, that in nearly half (47 per cent.) of all the syphilitic marriages abortions occurred, and that, particularly in those marriages in which the mothers were syphilitic (II. and III.), the number of miscarriages have a very high percentage (69 and 80 per cent.). This is explained only to a certain extent, by the tendency to abortion resulting from disease of the mother; to a greater extent from the fact that, as already mentioned, in those marriages in which the mother is diseased the inoculation occurs very frequently in the beginning of marriage, or very soon thereafter; consequently, the total effect of the transmission is of account from the beginning, while, where the fathers are alone syphilitic, a great part of the transmission-power exists before marriage, and is not noticeable in the figures. In those cases in which in the same marriage healthy children have preceded syphilitic ones, and where, therefore, the beginning of the parental syphilis occurs positively during marriage, one or two premature births follow the healthy children almost without excep tion; and, in four such cases in which the latter were wanting, always a long succession of years elapsed between the inoculation and the first birth. From this we deduce the fact, *that children procreated during the first years after the inoculation of the parents are almost unexceptionally born prematurely.*

In such a marriage abortions do not usually follow singly (in fifty-six marriages this was the case but twenty-one times), but, as a rule, two or several succeed each other; and the number of the premature births in the marriages observed by me varied between one and nine, and yielded an average of two to three abortions in each marriage.

The relation of prematurely-born children to those born at term affected with syphilis (those healthy children born before the inoculation of the parents, as also those born after the extinction of the transmission-power, are left out of consideration) is to be seen from the following table:

	NO. OF MARRIAGES.	Premature Births.	Syphilitic at Term.	Together.
I. Father alone syphilitic..	43 marriages	25 (24%)	80	105
II. Mother alone syphilitic..	10 marriages	18 (45%)	22	40
III. Both parents syphilitic..	23 marriages	39 (51%)	37	76
IV. Condition doubtful......	48 marriages	45 (41%)	64	109
Total................	119 marriages	127 (38.4%)	203 (61.6%)	330

Of 330 *children whose parents were syphilitic,* 127 (*consequently about two-fifths*) *were born prematurely, and* 203 (*nearly three-fifths*) *reached the normal termination of pregnancy.*

Here, also, we notice a somewhat striking difference between those cases in which the father alone is syphilitic, and those in which the mother also, or she alone, is affected. While, in the first case, only twenty-four per cent. were born prematurely and seventy-six per cent. at term, the proportion of miscarriages reaches in category II. (mother alone diseased) to forty-five per cent., and in III. (both parents diseased) to even fifty-one per cent. The reasons for there being a larger number of miscarriages in disease of the mother have already been considered. The increase of the percentage in category III. (both parents diseased) in comparison with II. (only the mother syphilitic) may be regarded, certainly, apart from all accidental causes, as the consequence of the concentration of the syphilitic inheritance from both parents.

The 127 premature births occurred 31 times before the termination of the sixth solar month, 48 times in the seventh, and 48 times in the eighth solar month. Those born during the course of the ninth solar month were included with those at term.

The *true abortions* occurred, twice in the second month, four times in the third month, six times in the fourth month, seven times in the fifth month, and eleven times in the sixth month.

In the majority of cases they began the series of syphilitic births (14 times), in three cases two, and in one case even three actual abortions (previous to the sixth solar month) succeeded each other; and it was only seldom that such an abortion happened between premature births of seven and eight months, or between the births of viable syphilitic children. (*See* the Irregular Succession of Births.)

Cause of the early Interruption of Pregnancy.—Different writers have sought in the most divergent directions for the deeper causes of premature births in syphilitic marriages. The greatest and most grievous error in this respect was that, for a long time, to the mercurial treatment of syphilitic pregnant women was attributed the cause of the miscarriage; this treatment, therefore, being strictly prohibited during the period. The erroneousness of this opinion, in the great frequency of premature births in the healthy wives of syphilitic men, is readily shown; as also later experience taught that syphilitic pregnant women, treated mercurially, brought their pregnancy to a termination more often than those left to themselves.

Logically we can seek for the cause of the disturbance in but two directions: first, in the inherited disease of the embryo; and second, in the disease of the mother.

Even upon the most superficial consideration, it is obvious that the first cause, namely, *the transmission of the virus to the fœtus, must be the most important and by far the most frequent cause of the inception of miscarriage.* As speaking in favor of this, upon the one hand, exists the fact that the premature birth results often enough also as a consequence of disease in the father alone, whereby the second factor, the disease of the mother, is entirely thrown aside; but also, on the other hand, the so-frequently observed gradual advance in the time of the premature birth toward the normal termination of pregnancy in several successive births; a condition which can only find its explanation by a gradual decrease in the intensity of the fœtal disease.

But as we more deeply investigate into the connection between the fœtal disease and the occurrence of miscarriage, we have at once difficulties not slight in character, and, on the whole, we are more dependent upon presumptions and conclusions than upon palpable facts. Several observers have explained this readily for themselves, and have attributed certain definite diseases of single organs in the fœtus as the cause of its death, and, as a result, its premature birth. Depaul (*l. c.*) held the exclusive, or at least the most frequent, cause of the death of the embryo to be syphilitic infiltration of the lungs; Dubois (1851), abscess of the thymus; Gubler (1852), syphilitic hepatitis; Simpson (1851) even, fœtal peritonitis; and Oedmanson (1869), the atheromatous changes of the umbilical vessels. But this subject is not one so simple. The affections of these organs are, either singly or even collectively, comparatively rare in proportion to the great number of syphilitic miscarriages; and they may, indeed, in each single case in which they are found be the occasion, partly or wholly, of the premature death of the fœtus; but the larger number of syphilitic premature births are not brought about through such palpable and striking lesions.

The very remarkable occurrence which we have already mentioned many times may, in these obscure cases, put us upon the right track, namely, the gradual advance of the time of the miscarriage toward the normal end of pregnancy in several following consecutively. As, in living children born with syphilis, we see an analogous occurrence in the gradual advance step, by step, of the manifest outbreak of syphilitic symptoms from the day of birth up to the third month, so would we at once suppose the gradual advance in the time of the premature birth to be intimately associated with the intra-uterine outbreak of hereditary syphilis, and the increasing scale of the different degrees of syphilitic poisoning, which are expressed by the outbreak of the first exanthema in the twelfth, tenth, sixth, third, and first week of extra-uterine life, to exist, also, during intra-uterine life; and here, also, the relatively modified poisoning causes, as a consequence, the outbreak of the fœtal disease in the ninth and eighth months, the more intense poisoning already in the seventh, sixth, and fifth months.

If we now consider what slight causes suffice, in certain cases, to bring about the premature birth and death of the fœtus; that, under certain conditions, the mere transmission of a febrile attack in the mother to the fœtus, whether it be through circulatory disturbances, through the alteration of temperature in the placenta, or through the morbid blood-interchange, can produce this effect; and that even such a slight febrile attack in the mother may be very injurious to the fœtus —it is certainly not surprising that a severer disease, attacking the embryo itself, can bring about the same result. When, in the symptomatology of hereditary syphilis, we now learn that in hereditary as likewise in acquired syphilis the outbreak of the general exanthema is preceded by a prodromic rise in temperature, that this prodromic fever appears almost unexceptionally with a temperature between 38.0 and 39.0 (Réaumur); when, in connection with the increase of temperature at the time of the extra-uterine eruption, also other prodromic symptoms are observed—striking pallor, enlargement of the spleen, great restlessness, continual screaming, often for several days, even weeks, before the visible symptoms—at all events, appearances which convince us of a severe affection of the general system, so should we find nothing remarkable in the fact that this severe general illness of the fœtus has at least the same effect as does sometimes a modified fever of the mother: namely, that it either causes the death of the fœtus, and thereby indirectly its expulsion, or that the disease of the fœtus induces contractions of the uterus and a premature labor, so that, indeed, a living child is born, although doubly endangered by its premature birth and its own disease.

As well in the first case, where the prodromic fever or the prodromic general illness causes the death of the fœtus in the uterus, as in the second, when it produces premature birth, and the nearly lifeless child succumbs before the outbreak of perceptible symptoms, it may happen, and, indeed, exceedingly often, that in the fœtus itself, even upon the most careful examination, no undoubted symptoms of the inherited dyscrasia can be discovered. Further, the disease of the epiphyseal connections of the long bones, certainly very frequent, and which, according to Wegner (1870) is almost invariably present, according to Waldeyer and Köbner (*l. c.*), and Fränkel (*l. c.*), is unexceptionally found in syphilitic embryos, may be entirely absent, as I, in several cases of undoubted syphilitic heredity, through the most careful macroscopic and microscopic examinations have convinced myself of, and as I shall refer to at length in the chapter upon Bone Syphilis; this as well in stillborn premature births as in non-viable syphilitic embryos. This holds good also, naturally, relative to the specific changes in the viscera.

But in many cases a complete outbreak of the disease occurs *intra uterum*, and may then likewise operate in two different ways: it either destroys the fœtus within the uterus through its severity, and it is then born dead, but with undoubted syphilitic lesions, pemphigus, diffuse syphilitic infiltration of the entire skin, etc., showing also frequently, upon dissection, syphilitic lesions of the intestines and far-advanced disease of the epiphyses; or, the child is born living, with the same externally perceptible and anatomically provable alterations. Of these two latter categories I have had opportunity to observe and carefully to examine numerous cases. But, taken collectively, the cases evidencing a negative result upon *post-mortem* examination are the most frequent, because usually the premature birth and death of the fœtus take place before the outbreak of the visible and palpable symptoms.

In connection with the inherited specific poisoning of the embryo, *the syphilis of the mother as a cause of premature* *birth* plays certainly but a subordinate *rôle*. Yet, upon grounds *a priori* as well as actual, it should not be entirely excluded. The deeply-seated general disease, and especially the prodromic affection of the syphilitic mother, accompanied frequently by fever, as well in the first eruption as also in the first relapse, may be certainly likewise as good a cause of the *partus prœmaturus* as the eruptive fever of any other acute disease. But, apart from this, it is remarkable that the early abortions (before the sixth month), beginning occasionally the series of syphilitic births, are to be observed disproportionately oftener in disease of the mother than in the other cases. In the thirty-three cases in which the mother was syphilitic, the initial abortion came under observation eight times (consequently in twenty-four per cent.), in the remaining eighty-six cases six times (consequently in seven per cent. only); and it is readily to be supposed that, in several of the first cases, the very recent syphilis of the mother—and of only such do we speak here—may have accelerated the premature birth of the first child, whether syphilitic or healthy at the time of conception.

Finally, among the causes of premature labor in connection with the inherited poisoning of the fœtus and the disease of the mother, there is still a third possibility to be considered: *the disease of the placenta.* But, fundamentally, the placenta is one-half a part of the mother and the other half a part of the fœtus, and we must therefore strictly separate the disease of the *pars fœtalis* from that of the *pars materna.* Such a separation has, in fact, been made. In all cases of syphilitic miscarriages Fränkel (*l. c.*) found the *placenta fœtalis* diseased in a peculiarly diffuse manner, and agitated the question whether this affection of the placenta was the cause of the premature birth, or whether the fœtal death owing to internal causes was a primary, and the premature birth a secondary result.

Without desiring to entirely exclude the influence of disease of the *placenta fœtalis*—which, indeed, as a part of a severely diseased ovum, can be certainly drawn readily into sympathy with it—yet I would not inconsiderately accept this cause of the premature birth and death of the fœtus in th broad and general way assigned by Fränkel. Upon the one hand, it is noteworthy that in several of his cases, in which the affection of the *placenta fœtalis* is represented as well developed, with degeneration of the meshes and atrophy of the vessels of the villi, nevertheless neither premature birth nor fœtal death *in utero* occurred, but the pregnancy reached its normal termination; and in one case (I.) death resulted first during labor, in another (XV.) the mature child, affected with pemphigus, lived for five days. Upon the other hand, in many very carefully-examined placentas of unmistakably syphilitic embryos, I have either not found the degeneration spoken of at all, or only in such limited amount that I could not convince myself, at least in these cases, of the significance attributed to it by its discoverer. Yet, in principle, it must be granted that relatively slight alterations in the structure of the placenta may also occasion a collateral fluxion to the otherwise healthy parts, blood extravasations, detachment of the placenta, and consequently indirectly abortion (Fränkel).

The disease of the *maternal portion* of the placenta (*endometritis placentaris gummosa*) is naturally observed only in syphilitic mothers, and, upon the whole, very rarely. It has been described thus far in seven cases by Virchow, Kleinwächter (1872), Slawjansky (1871), and Fränkel (*l. c.*). That such a disease can be a cause of premature birth is beyond a doubt; nevertheless, I believe that, in the by far larger number of all cases, it must be left quite out of consideration, The disease of the *placenta materna*, as of an internal organ. and especially in a gummy form, corresponds, at all events, with a later stage of maternal syphilis. But just here, in this late stage of maternal syphilis, a premature birth is of most exceptional occurrence, while in the first years it follows almost unexceptionally.

Accordingly, therefore, the essential cause of fœtal death and miscarriage in the majority of cases of syphilitic premature births is to be found in the disease of the embryo itself.

(*To be concluded.*)

Clinical Records from Private and Hospital Practice.

I.—*Case of Tubo-Interstitial Pregnancy; Destruction of the Life of the Fœtus by the Galvanic Current; Recovery.* By CHARLES MCBURNEY, M. D., New York.

EARLY in December, 1877, I took charge of Mrs. C., a young married lady, who supposed herself to be pregnant for the first time, and obtained from her the following history:

Up to October 1, 1877, Mrs. C. had always menstruated regularly, with one exception, when, several years ago, her period was delayed for two weeks, owing to a severe cold. Up to the same date she had never had any uterine disease or other malady affecting the pelvic organs. Her last menstruation began on October 1st, and terminated on October 5, 1877. From this date, up to November 22d, no menstrual discharge appeared. On November 22d, and again on the 23d, a slight flow occurred on the afternoon only of each day. This flow was not accompanied by pain. On November 24th there was no flow. On the afternoon of November 25th the discharge of blood was "quite abundant." From this date to December 1st there was an entire cessation of flow, but in the evening of December 1st it reappeared. There was now another intermission till December 9th, when, on that day, and on the two succeeding ones, there occurred a slight discharge of blood, which was not continuous.

The gastric and mammary signs of pregnancy were well-marked, nausea having been troublesome since the middle of October. On December 16th there was a slight discharge of blood from the vagina, and again, on the 20th, it recurred for a few hours in the morning. On none of these occasions had there been pain, or other symptom of abnormal pregnancy. On December 25th I made a thorough examination.

In examining the abdomen, I could not feel the fundus of the uterus; but on the left side, overhanging the edge of the true pelvis, and extending beyond about two inches, I could distinctly feel a smooth tumor, apparently about the size of a large egg. Slight pressure over this tumor gave decided pain.

Pressure at any point, in the lower half of the abdomen, gave pain in the region of this tumor.

On making a vaginal examination, I found the uterus displaced decidedly to the right of the median line. The uterus was certainly very slightly, if at all, enlarged; and the cervix, which I examined with the speculum, appeared to be the cervix of a non-impregnated uterus. To the left of the cervix could be very distinctly felt a fluctuating tumor, with a very thin wall. Pressure against this caused decided pain. Pressure applied over the tumor, felt through the abdominal wall, did not perceptibly disturb the position of the cervix, but did very decidedly force down the roof and left wall of the vagina.

The history of the case, and the results of my examination, led me to make the diagnosis of extra-uterine pregnancy—probably tubal; but I did not use the sound, as I wished to have others examine the case, and I did not think it well to have the sound used more than once.

December 30th.—I made a second examination, with precisely the same result as that obtained before.

January 2d.—At my request, Dr. T. G. Thomas examined Mrs. C., and coincided entirely in the diagnosis. Dr. Thomas was able, by bi-manual examination, to feel the fundus of the uterus quite to the right of the median line, and little, if at all, enlarged.

I then asked Dr. T. Addis Emmet to examine the case, which he did without being informed of its nature. He pronounced the case to be certainly one of extra-uterine pregnancy, and also stated that, in his examination by the rectum, he thought he could feel a sort of vermicular motion in the tumor, such as might be caused by a small fœtus.

To avoid a possible mistake, we again met on January 3d, and the uterine sound was passed by Dr. Thomas, Dr. Emmet, and myself. The fundus was reached at a depth of exactly 3½ inches. Not a drop of blood followed this examination. In discussing the treatment of the case, we were unanimously of the opinion that delay was not to be thought of. Three methods of treatment were spoken of: 1. Gastrotomy. 2. Delivery through the vagina, after Thomas's method, using the galvano cautery-knife. 3. Destruction of the life of the fœtus by the galvanic current. This last method was strongly urged by Dr. Thomas, and was agreed upon as offering the best chance of success. (*See Ohio Medical and Surgical Journal* for October, 1877; "Transactions of the Obstetrical Society of London, 1866," vol. vii., p. 96; "*American Journal of Obstetrics*, May, 1872," p. 161.)

What we expected as a result of the death of the fœtus was one of two things: either the fœtal mass would become encysted and remain inert, or an abscess would eventually form, and discharge through one of the usual channels.

January 3d.—2 P. M.: Present, Dr. A. D. Rockwell, Dr. Thomas, Dr. Emmet, and myself. Dr. Rockwell brought with him his own battery, and took charge of its management during the application of the current. I am indebted to him for an accurate account of the quantity of electricity used, which I give in full, as it may be of use to others. The galvanic current was used, generated by zinc-carbon elements immersed in the following solution:

Potass. bichrom.	℥j
Acid. sulphuric.	℥ij
Aquæ	℥vj

Each zinc-carbon element was 5 inches long and 1¾ inches wide. The negative electrode consisted of a long, insulated stem, surmounted by a metal ball ¼-inch diameter, and covered with wet sponge. This was passed through the anus about 4 inches, and applied to the rectal aspect of the tumor. The positive electrode consisted of a broad, flat, wet sponge, and was applied to the abdominal surface of the tumor. The circuit of 17 cells was now closed, and a series of current interruptions—about 120 to the minute—passed. Excluding several short intervals of rest, the patient was under the influence of electricity during three minutes.

Very marked contractions of the muscles of the abdomen and limbs accompanied the shocks, and decided pain was caused, but the patient was perfectly comfortable as soon as the current was stopped. The patient passed a comfortable day and night, without pain or disturbance of any kind.

January 4th.—9 A. M.: Battery again used in the same way. The application was begun with 18 cells, which number was gradually increased to 23, with which the last series of shocks was given. Violent muscular contractions were caused, and the patient complained of intense pain. Two minutes were consumed in actual treatment, and during the application the current was twice reversed. The pain caused was very severe, and did not entirely cease after the cessation of the current.

During the afternoon and evening the patient complained of occasional severe pains, always referred to the left iliac fossa. 11. A. M.: Pulse, 88; temperature, 99.3°. 12.45 P. M.: Pain severe. Gave one-quarter grain morphine subcutaneously. Nausea became constant, and before night the patient vomited after taking anything, even water, into the stomach. 2 P. M.: Pulse, 96; temperature, 99.5°. 3.30 P. M.: Gave suppository, containing extract opium, one-half grain; extract belladonna, one-quarter grain. About 9 P. M., a slight discharge of blood from the vagina was noticed. During the night, nausea, vomiting, and severe pain continued. Pain was partly controlled by morphine, given hypodermically. A slight flow of blood continued through the night.

January 5th.—9 A. M.: Consultation: present, Drs. Thomas, Emmet, and myself. Temperature, 100.5°. Abdomen very tender at all points; tumor very hard, prominent, and painful; patient's expression worn; pulse rapid and feeble. Everything pointed to an early rupture of the sac. This opinion was entertained by all those present. 10.30 A. M.: The flow suddenly became much more abundant; and, on examining the abdomen, I found that the tumor in the left fossa had disappeared, with the exception of a small mass on the brim of the pelvis. In the median line, reaching to within about two inches of the umbilicus, I could distinctly feel a smooth, symmetrical tumor, precisely like a uterus containing a foetus of three or four months. My first impression was that the uterus had filled with blood, but, on making a vaginal examination, I felt a tense and very strong bag of membranes protruding from a fully-dilated cervix. On rupturing the membranes, there was a large discharge of pure liquor amnii, and with it a dead fœtus of about three months. The placenta followed in about 20 minutes, and the uterus contracted naturally and remained firm. The patient at once felt an intense relief.

During the day there were a few ordinary after-pains, and the abdomen continued to be somewhat sensitive to pressure. It was easy, at several examinations made during the day, to feel the fundus of the contracted uterus, and, at the same time, a thickening of the tissues where the former tumor had been.

January 6th.—10 A. M.: Patient passed a pretty comfortable night. The flow was rather abundant. Pulse, 104; temperature, 100°. 8 P. M.: Pulse, 110; temperature, 101°. General soreness of muscles all over the body.

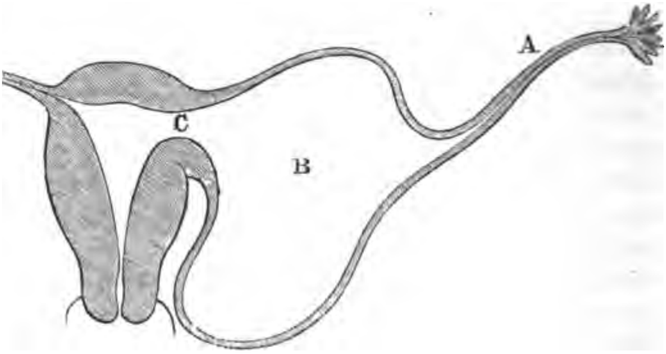
January 8th.—Pulse, 88; temperature, 99.5°.

Mrs. C. made as rapid a recovery as is usual after an abortion.

In concluding my report of this case, I wish to state distinctly the position which I believe the fœtus to have occupied. That it was not in the uterus, the repeated and careful examinations made have, I think, demonstrated. That it was not far from the uterus, the result has rendered more than probable. The fœtus was, no doubt, situated in the left Fallopian tube, and probably so close to its point of entrance into the uterine cavity that, by dilatation of the mouth of the tube, with, very probably, some rupture of its margin, the fœtal mass was enabled to escape into the uterus. The drawing given on the next page is intended to represent (of course in a purely diagrammatic manner) the probable position of the fœtus.

The escape of the fœtal mass from its abnormal position into the uterine cavity and the rapid dilatation of the latter to receive it were certainly remarkable. Might not the unusual strength of the membranes have contributed largely to the attainment of this fortunate result? In a similar case, I should attempt, by another means, to render the diagnosis of the position of the fœtus still more certain. There could be no serious objection to thoroughly dilating the cervix uteri, and introducing the finger to the fundus, as by that means one could, perhaps, ascertain the possibility of delivery through the uterus.

It has been suggested to me that an abnormal shape of the uterus would account for some of the signs presented.



A. Left Fallopian Tube beyond the Sac; *B.* Dilated Portion of Tube where Fœtus was situated; *C.* Opening of Tube into Cavity of Uterus.

On February 8, 1878, I made an examination of the patient whose history I have given. It was perfectly easy, by bi-manual examination, to decide as to the shape of the uterus. Its entire contour could be felt, and I satisfied myself that there was not the slightest abnormality in the shape of this organ. The uterus seemed to be still very slightly displaced to the right of the median line, but I could feel nothing to the left of the median line of an abnormal character. The examination which I made was repeated by Drs. Thomas and Emmet.

II.—*A Case of Femoral Aneurism successfully treated by Intermittent Pressure.* By Theodore R. Varick, M. D., Surgeon to St. Francis's and Jersey City Charity Hospitals, Jersey City, N. J.

Mrs. D., widow, aged forty-nine, native of Ireland, first observed a pulsating tumor in the right groin about two and a half years ago. For a period of two years it remained nearly stationary, giving no serious inconvenience, and, except for its pulsation, she would not have noticed any deviation from health. About six months since, while walking in the street, she was conscious of a feeling of numbness extending down the limb, and observed an increase in the size of the tumor.

From this time it continued to enlarge until October 19, 1877, when she called at my office. On inspection, I discovered an aneurism of the common femoral artery, commencing immediately below and impinging upon Poupart's ligament, and extending three inches down the limb, including a portion of the superficial femoral, with a strong expansive pulsation and well-marked aneurismal bruit; the pulsation in the sac ceasing on compression above. The collapse of the sac, which occurred at this time, indicated a fluid condition of the blood, and an absence of all effort on the part of Nature to effect a cure by the deposition of laminated fibrin.

Having determined to resort to the treatment by pressure, I accordingly, on the 25th, applied a conical-shaped canvas bag, containing 14 pounds of shot, to the femoral as it passes over the ramus of the pubis, which had the effect to completely control the current of blood and allow the sac to collapse. The shot-bag was suspended from the ceiling by a cord, into which was inserted a piece of elastic, the better to admit of its accommodating itself to the motion of the body. Owing to the pain produced by the pressure, and the extreme irritability of the patient, it was necessary to have an assistant constantly with her in order to keep the weight *in situ.* Notwithstanding the utmost care, owing to the impossibility of keeping the patient quiet, the pressure would at times become entirely displaced, allowing a return of the current through the sac. The object of the pressure was simply to diminish, and not absolutely to cut off the flow, thereby favoring the processes of Nature in effecting a cure by the deposits of laminated fibrin, and although, for the reasons above stated, it was impossible to carry out this plan strictly in detail, yet a similar result was arrived at by the intermittent character of the compression. Occasionally the full force of the circulation coursing through the sac, now partially or completely arrested, allowed the fibrin to collect in the concavity of the sac, and at the same time to attach itself to any asperities that might exist, thereby forming nuclei for subsequent deposition. The time occupied by, and the manner of application of, compression, will be seen by reference to the subjoined table:

Date.	Pressure on.	Pressure off.	Hours.
October 25th..........	10.00 A. M.	10.00 P. M.	12.00
October 26th..........	9.20 A. M.	8.00 P. M.	10.40
October 28th..........	9.10 A. M.	8.10 P. M.	11.00
Total shot-bag pressure........................			33.40

The sac at this time becoming manifestly more solid, and losing its expansive pulsation, the point of pressure having become excoriated, and the sac hot and tender, all pressure was removed, and ice-bags applied until November 3d, when Ricord's bubo compressor was substituted for the shot-bag, and answered an excellent purpose, maintaining its position and controlling the circulation at will.

Date.	Pressure on.	Pressure off.	Hours.
November 3d..........	12.00 M.	2.45 P. M.	2.45
November 4th.........	9.40 A. M.	6.00 P. M.	8.20
Total by Ricord's compressor..................			11.05
Total shot-bag pressure........................			33.40
Grand total...............................			44.45

At this time pulsation in the femoral below the sac ceased, not gradually, but abruptly, and the artery could be felt below the point of egress from the sac, pulseless and cord-like. The egress of blood being prevented in the main channel, and ultimate success being assured, all pressure was removed. The pulsation in the sac gradually diminished until the 14th, when it ceased entirely.

In addition to the details just cited, the patient was confined to an absolutely animal diet with a minimum allowance of liquids, perfect rest in bed, and bromide of potassium in sufficient doses at night to produce repose, morphine having been previously tried, but abandoned, as it occasioned nausea.

The patient, being a spare woman, with relaxed integument and feeble muscular development, was a particularly favorable subject for observing the course of the disease and the progress of cure. The aneurism, from its location, unless there existed an abnormal anatomical arterial distribution, must have given rise to five efferent branches, viz.: superficial epigastric, superficial circumflex ilii, two external pudic (superior and inferior), and the profunda femoris, which, taken in connection with the point of ingress, and point of egress of the main trunk, made in all seven openings into the sac—a condition exceedingly unfavorable to successful treatment. Owing to the general physical condition of the patient alluded to, the tumor could be grasped nearly to its entire posterior aspect, and the branches arising therefrom distinctly felt, violently vibrating. The femoral below the sac having become embolized, as must have been the case, as indicated by the abrupt subsidence of pulsation, the sac below the origin of the profunda (for a distance of about one inch and a half) became reduced to the condition of a diverticulum, especially favorable for the deposition of laminated fibrin. From this time solidification progressed with increasing rapidity, as one by one from below upward the efferent branches became obliterated and the cure completed. Another point to be observed is, that the shot-bag pressure was applied to the artery within one-quarter of an inch of the upper portion of the sac, while that by Ricord's bubo compressor, on account of the size of the pad, was, in addition, exerted upon the upper portion of the sac itself.

January 8, 1878.—I visited the patient to-day, and found the tumor reduced to the size of a hickory-nut, perfectly solid, and free from pulsation; the patient suffering no inconvenience except from a somewhat diminished temperature of the part, with occasional cramps of the muscles of the limb.

Notes of Hospital Practice.

CHARITY HOSPITAL.

Service of Dr. Joseph W. Howe.

Exsection of the Head of the Femur in a case of Ununited Intracapsular Fracture.—An interesting case of excision of the hip-joint was recently performed on a patient suffering from old ununited intracapsular fracture of the head of the femur.

The patient, a woman fifty-eight years of age, had received the fracture eighteen months previously. She was treated by extension for fifteen months, but, as no signs of ligamentous or bony union were found at the end of that time, the limb was put up in plaster-of-Paris dressing. The plaster was renewed several times during a period of three months, but at the end of that time there was as much pain as at the time of injury. During the whole period of eighteen months the patient was unable to leave her bed. It was decided to perform exsection of the head of the femur.

A curved incision, three inches long, was made behind the trochanter, and the joint opened. It was then found that the only attempt at union was a ligamentous band an inch and a half long by an eighth of an inch thick, extending from the remains of the head to a spicula of bone running out from the base of the trochanter. The remainder of the neck had disappeared. In the cavity of the joint half a drachm of thick pus surrounded the remains of the head of the femur.

The ligamentous band was seemingly the remains of the capsule. The pain which the patient complained of was caused, in all probability, by the spicula of bone pressing upon the surrounding tissues.

The patient made a good recovery, and eight weeks after the operation she was able to sit up and move the limb without experiencing any pain. She seems to have every prospect of a useful leg.

The operation was believed to be indicated from the fact that the patient had been confined to her bed for eighteen months, and at the end of that time her condition was nearly as bad as at the time of injury.

Removal of Skin over a large Inguinal Hernia; Obliteration of the Sac.—A man aged thirty-five years had a large reducible hernia, which on one occasion became strangulated. He was operated on at Bellevue Hospital, and recovered. As a result of the operation, the opening in the abdominal wall became increased in size, and allowed of an increased protrusion of omentum and intestine into the scrotum. When the patient was standing, the hernia extended down for a distance of eight inches. The lower portion was ulcerated, and looked as if the intestines would soon protrude. He was unable to wear a truss. It was proposed to obliterate the sac, and for this purpose the hernia was reduced; then the redundant scrotum and skin was gathered up, and secured by a clamp; it was then removed by a scalpel, and the edges of the incision brought together by ligatures. Two weeks after the operation the wound was completely healed. It was found that, in the removal of the redundant tissues, the intestines were laid bare.

The condition of the patient, three weeks after the operation, is such that he is able to walk about without difficulty. The hernia still protrudes slightly, but it is readily held in position by means of a truss.

BELLEVUE HOSPITAL.

Treatment of Fracture of the Clavicle by means of Plaster-of-Paris dressing.—Dr. W. L. Cuddeback, house surgeon, has devised a novel means of treating fracture of the clavicle by means of the plaster-of-Paris bandage. The principle consists in retaining the arm of the affected side in an immovable position; and from the results obtained it would seem to offer some marked advantages over the other methods. It has the advantage of leaving the clavicle open for inspection, and, if necessary, pressure can be applied to either of the fragments.

The detail of the method is as follows: The elbow is bent in the proper position, and the arm placed in the usual manner across the thorax, so that the clavicle is carried backward and outward. A pad of cotton-wool is then placed in the axilla, and an additional amount of wool beneath the hand where it rests on the opposite shoulder. The ordinary plaster bandage is then carried two or three times across the thorax and arm of the affected side, and then made to pass obliquely along the course of the forearm of the affected side from the olecranon to the hand. It is then passed obliquely down the back, and directly across the body, as when first applied. The bandage is passed, alternately, directly across the body, and obliquely along the forearm, a sufficient number of times to make the shoulder perfectly immovable. To prevent pressure of the olecranon on the dressing, the elbow is padded with cotton-wool during the application of the plaster roller.

SERVICE OF DR. STEPHEN SMITH.

Fracture of the Pelvis.—A case of fracture of the pelvis was recently admitted into the hospital, and was of interest from the amount of comminution of the bones which existed. The patient was a man aged thirty, who received the injury by having a heavy wall fall on him. He was admitted a few hours subsequently, suffering from shock. The fracture of the pelvis could be readily made out, and was recognized as being very extensive. There was a laceration of the urethra, caused by fracture of the pubis. When the catheter was introduced it passed down to the site of laceration and evacuated two ounces of bloody urine. By cautious manipulation a flexible catheter was carried into the bladder, and the usual amount of clear urine was obtained. External urethrotomy was performed, with the intention of relieving the bladder and preventing the occurrence of extravasation. In this respect the operation was successful, as only a slight amount of swelling occurred in the scrotum. The patient passed his water in great part through the opening, but partly also in the natural way. He lived for a week, and at the end of that time died of general peritonitis.

Autopsy.—There was no change in the substance of the kidneys. The left kidney was imbedded in a clot of blood. The pelvis was dislocated at the sacro-iliac junction. There was also a fracture of a triangular piece of the ilium, forming a portion of the articulation with the sacrum. The ischium was fractured on the left side; this fracture extended through the acetabulum and involved the rami. The pubis was also fractured, and caused complete rupture of the urethra. The crest of the ilium, three inches wide, was fractured, and behind this fracture the dislocation of the pelvis already referred to occurred. An interesting feature of the case was that, notwithstanding the extensive fracture of the pelvis, involving the acetabulum, the head of the femur remained in position, and allowed the patient to bear his weight upon it.

Clinical Reports of the Demilt Dispensary.

OUT-DOOR DEPARTMENT.

RECORDS OF SCARLATINA IN SEVENTY-FOUR CASES.

By Dr. W. E. Bullard,

VISITING PHYSICIAN TO THE SOUTH DISTRICT OF THE DISPENSARY.

These cases were observed during the year 1877, and are presented in order to emphasize some interesting facts in their symptomatology, and to elicit some practical lessons from their treatment.

Of these 74 cases, 61 recovered and 13 died—a mortality of $17\frac{6}{10}$ per cent. Forty-nine ran a mild course after the first two or three days from the time of invasion; 25 were grave, and some of them very malignant. In two of the fatal cases, death took place from general convulsions during the first 24 hours of the disease; in one, from the same cause, on the fifth day. Six died from the extreme virulence of the throat-affection, which was accompanied in all by great glandular enlargement (gangrene and abscesses in three), and very bad nasal implication. There was a diphtheritic exudation in five, the immediate cause of death being septicæmia and exhaustion. Three died of acute desquamative nephritis. In one the cause of death was unknown, the patient having passed out of my care after the first visit. One-third of all the cases were seen on the first day of the rash, and 13 were watched during the stage of incubation—these, of course, occurring in families where other members had been previously attacked.

A most prominent early symptom, and one which has manifested itself before any other in all of the 13 cases spoken of above, has been marked redness of the throat; the arches of the soft palate, the tonsils, and uvula presenting a deep-red color. This initial redness has been universally observed; and I have yet to see a case, however mild, in which it does not exist. Not only has this redness been observed in the throats of the patients, but also in those members of the family who were in intimate contact with the sick person. In 20 families, where observations were made with reference to this point, nearly all the members showed this same redness about the fauces; and in some, especially the mother or nurse, this throat-affection became so troublesome as to claim soothing treatment.

Two noteworthy examples will be cited. In a family where a boy of four years and his sister of three were attacked with the grave form of the disease, the father, mother, and two of the older children (all of whom had suffered from the disease before) presented the above-mentioned phenomena, and the two children had patches of soft exudative matter on both tonsils, together with fever and difficulty in swallowing, and were unable to perform their usual work for several days. The membrane did not disappear for nearly a week. The mother was obliged to give up the care of the sick ones for a day, on account of these same manifestations.

In another instance, where three children in a family were sick at the same time, one of them having the grave form of the disease, this same appearance in the throats, together with swelling of the tonsils, showed itself in both parents, and also in two relatives who were visiting the family for a few days. All of these four suffered very much when swallowing, and had all the symptoms of ordinary tonsillitis.

From this disease, producing such results in those who have previously experienced it, we may infer that a partial reinfection, like that noticed in second or third vaccinations, takes place. And may we not also conclude that the throat is the point where the *contagium* first lodges in all primary attacks?

Nervous Symptoms.—Only three instances of general convulsions ushering in the attack have been noted; of these, one recovered and two died. They are as follows:

Case I.—Lizzie S., aged four years, was taken suddenly in the morning with a violent general convulsion; she was perfectly well the day before. There was no recurrence of the spasm. The rash appeared on the third day. The case proved a mild one, and the child recovered.

Case II.—Lawrence S., aged three years, brother to the patient just mentioned. The attack began with high fever and a general convulsion, after which the patient sank into a state of semi-coma, with occasional twitchings; this condition lasting from 8 o'clock in the morning until 3 in the afternoon, when the boy was first seen by me. The temperature at this time in the axilla was 105°; the pulse, 140. No rash was visible, but there were redness and swelling of the tonsils. A violent general convulsion took place at 4 o'clock; and others ensued, at short intervals, until 12 at night, when death took place.

CASE III.—J. F., aged two years. This boy had been exposed to infection from his sister for six days, and was attacked during the night with a severe convulsion; three more occurred before my arrival, the following morning, and one, of ten minutes' duration, during the visit. Temperature, 105° in the rectum; no rash; marked redness of the throat had been noticed for several days. A wet-pack was at once applied, while the child was still in the coma which followed these spasms, and we soon had the satisfaction of seeing all the dangerous symptoms disappear; the child began to cry lustily, and the skin became cooler. Directions were left to reapply the wet-pack if the skin became hot again, or if any nervous symptoms were noticed. The child was quiet until about evening, when the spasms again recurred, the mother having in the mean time used no packs. Death took place the next day, after repeated convulsions.

Convulsions occurring later in the course of the affection have been observed in five instances. All these cases terminated fatally—results helping to confirm the observations of many writers, viz., that convulsions occurring in the second or third week of the disease render a fatal termination very probable.

Eight of the 25 grave cases manifested, from the first, either active delirium or semi-coma. One of these, on account of the prolonged dangerous condition, and the typhoid aspect which the case assumed, will be briefly given. An Irish girl, fourteen years of age, was taken with vomiting and high fever, on returning home from an errand one evening. When seen, two days afterwards, she was semi-comatose. Temperature, 104° (axilla); pulse, 120; throat of a deep-red, almost purple color; tonsils swollen; and the entire body covered with a bright scarlet eruption, which the mother told me was "only a good healthy Irish blush."

The girl could be easily roused, but would sink at once into the same unconscious state. These symptoms gradually assumed a more alarming type; the tongue became brown and cracked, and sordes collected on the lips and teeth. The delirium was not violent, but there was subsultus tendinum and picking at the bed-clothes. The patient continued in this typhoid state for two weeks, the temperature ranging during this time from 103° to 105¾°.

Convalescence was slow, but the patient eventually recovered.

Temperature.—The temperature in these cases was carefully recorded in nearly every instance, and was taken in the axilla, except in one case which has been mentioned.

The highest point reached was 106°, and this was only observed in five instances. All these were very grave cases, only two recovering.

One point of interest in connection with the temperature was the sudden rise which was noticed upon an intensification of the throat implica, tionthe invasion of the nasal, or Eustachian passages, or when some complication (as rheumatism, for instance) showed itself.

Treatment.—The treatment usually adopted has been very simple, and in the earlier stage of the disease directed toward a mild disinfection of the throat. For this purpose the following formula has been used:

℞. Potassæ chloratis .... ʒ ss.
Glycerinæ .... fl ℥ ss.
Aquæ calcis................................ fl ℥ ijss.
M. S. A teaspoonful every hour or two.

In diphtheritic or bad anginose cases the following formula has also been used:

℞. Tinct. ferri chloridi........................ ʒ j.
Glycerinæ, aquæ..........................āā ℥ j.
M. A teaspoonful, alternately with the former, at hour or half-hour intervals.

Manifestations in the throat, such as swelling of the mucous membrane, deposit of false membrane, etc., have been in most cases favorably modified. The diphtheritic patches disappeared more quickly than when no special treatment directed toward this object was used, and it has also been found that, where this treatment was instituted early, there was less liability to the different implications spoken of.

In grave cases, accompanied by membrane, and serious nasal implication, or gangrene of the submucous tissues, a spray of carbolic acid and lime-water was used hourly, the anterior and posterior nares being syringed out with lukewarm salt water. This was considered to be a very essential part of the treatment in these cases.

Baths.—The application of cool baths, or sponging with tepid water, was used in only six cases. The reason for the small number of trials of this most useful adjunct in treatment was, the difficulty in obtaining the parents' coöperation.

The cool tub-bath was given in two cases, thoroughly, and after the plan of Dr. J. Currie, of Edinburgh. The temperature of the water used was about 60° F.

The most marked effects were at once noticed in both instances. Where there was a temperature in the axilla of 105°, and a pulse of 130, the former fell in five minutes to 102°, and the latter to 100, and this reduction would generally continue for a short time, or at least remain stationary for a half-hour or more, the little patient in the mean time sinking into a quiet sleep. At the end of an hour, or two hours, the bath was repeated or a wet-pack substituted.

With one of these patients, a girl four years of age, cool tub-baths, together with wet-packs, were commenced on the seventh day of the disease, and continued four days, being alternately used every two or three hours throughout the day and night. At the end of the fourth day the temperature had fallen from 106° to 102°, where it remained for several days. This patient recovered.

In the second case (a girl of three years), the same system of baths was instituted on the third day following the attack, and was continued, as in the case above mentioned, for four days. When the temperature had fallen from 105° and 106° to 102½°, they were discontinued. Two days after the lymphatics under the jaw began to swell, diphtheritic membrane appeared over the whole mucous membrane of the fauces, and the temperature rose again to 105°. Abscesses formed in different parts of the body, which, when opened, discharged quantities of white thin fluid; and, to complicate all these bad symptoms, the child fractured the right ulna by its violent tossings during the delirium which now ensued. This case terminated fatally on the 21st day of the disease.

Both of the cases just related were grave, and manifested delirium and coma at their outset. The baths relieved all the nervous disturbances, besides giving the utmost comfort to the patients.

Cool sponging was found to be most agreeable, but not as efficient a method of reducing the intense heat of the body.

The wet-pack, when used often enough, accomplishes this reduction of temperature, and seems to favorably affect the future course of the case. It is a way of applying cold that is easier than the tub-bath, and does not distress the patient or friends as much. Some of the special lines of observation and methods of treatment which I have indicated in this paper were carried out in accordance with an agreement made, at the beginning of the year, with my friend Dr. C. E. Billington, visiting physician to the north district of this dispensary.

Proceedings of Societies.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, January 22, 1878.

Dr. A. J. C. Skene, President, in the chair.

Dr. W. M. Chamberlain presented an instrument he had devised for the removal of fragments of embryo, etc., from the uterus, and also for making traction on the uterus when it was desired to draw that organ down—for which purpose he had found it superior to tenacula. One blade of the instrument was fenestrated and rounded, and the other penetrated the fenestra so as to obtain a very firm hold without danger of cutting or puncturing. Dr. Chamberlain considered it important to avoid punctured wounds of the cervix.

Dr. H. J. **Garrigues** asked if punctured wounds were necessarily dangerous, and said he was accustomed, in some cases, to puncture the cervix once or twice a week with a narrow, lance-shaped instrument, and had never seen any bad results from it.

Dr. **Chamberlain** had had some very unpleasant experience with such wounds; but, with the instrument used by Dr. Garrigues, the wound was rather an incised than a punctured one. He had, on two occasions, seen acute corporeal metritis, going on to suppuration, from punctured wounds.

Dr. **Garrigues** explained that the instrument he used was not broad at the shoulder, but was a sort of spear.

Dr. B. F. **Dawson** exhibited his ovariotomy-clamp, with the constricted portion of a pedicle *in situ*, as removed from a patient on whom he had recently operated. Attention was directed to the small size of the piece of pedicle, and the advantage in shape and position with regard to the abdominal wound.

Dr. **Skene** said he had employed the same clamp, with excellent results.

Dr. **Noeggerath** said he had used it, and was very well satisfied with it. Now that the tendency was to dispense with the clamp in ovariotomy, it was very important, when used at all, to have a good one. Fifteen or sixteen successful cases of ovariotomy were reported by Schroeder and others, by the antiseptic method, where no clamp was used. But occasionally cases were met where, either on account of large blood-vessels with rigid walls, or a very thick pedicle, a clamp was necessary.

Dr. **Skene** presented a form of endoscope adapted particularly to the female urethra and bladder, and the rectum. It consisted of a glass tube, like a test-tube, in which a sliding mirror was so arranged that the parts could be thoroughly exposed. The tube being closed at the distal end, the mirro was not affected by the moisture, and remained bright. The instruments were made of various sizes, each one being accompanied by a cylindrical speculum of hard rubber, with a fenestra through which to make applications. They had proved especially useful in the rectum and urethra.

Dr. M. A. **Pallen** said he always dilated the urethra before examining it.

Dr. **Noeggerath** suggested, as an addition to the instrument of Dr. Skene, the distention of the bladder by warm air.

Dr. **Skene** was familiar with the method of using air, but had found it much more painful than water.

Dr. **Noeggerath** suggested carbonic-acid gas.

Dr. **Chamberlain** asked if accidents had not been reported from the use of carbonic-acid gas.

Dr. **Noeggerath** said there had been accidents from its use in the uterus, but he did not know of any from its use in the bladder. The uterus absorbed medicines much more rapidly than the bladder.

Dr. **Pallen** asked if there was any proof that the normal mucous membrane of the bladder would absorb at all.

Dr. **Noeggerath** had repeatedly injected opium into the bladder, but had never seen symptoms of its absorption. In injection of the uterus he had often seen evidence of absorption.

Dr. **Skene** had never seen evidence that opium or belladonna had been absorbed by the bladder.

Dr. **Ward** mentioned a case in which half a grain of morphia, with chloral, had been injected into the bladder every two hours, producing relief from severe pain in a case of acute cystitis after ovariotomy.

Dr. **Skene** said Braxton Hicks used morphine in the bladder, after applying nitrate of silver.

Dr. **Pallen** had found more benefit, in cystitis, from warm water and carbolic acid than from anything else. He used from 40 to 60 drops of acid to 8 ounces of water, and distended the bladder to the utmost with the solution. The relief afforded by this treatment sometimes lasted for a week.

Dr. **Chamberlain** mentioned the case of a physician whose urine was swarming with bacteria, which were destroyed by injecting a solution of borax.

Dr. **Cleveland** presented the uterus and fœtus from a patient, aged twenty-five years, who died in hospital. She was between four and five months pregnant, and had slipped in descending a stair-case. She immediately afterward felt pain in the left iliac region, and a point of tenderness was discovered over the left horn of the uterus. She had a chill during the night of January 26th, and vomited several times. The pain and vomiting continued all the next day and night, and the patient died suddenly at 11.30 A. M., January 28th.

The autopsy revealed a large blood-clot in the abdominal cavity, and in it a male fœtus nine inches in length, and weighing seven ounces. The cord was unbroken, and was traced through a laceration, five inches long, in the left cornu of the uterus. Examination showed the condition to have been that of interstitial pregnancy. The placenta was attached to the wall of the sac.

Dr. **Skene** said the important point was, whether an operation would have been advisable.

Dr. **Cleveland** explained that he had not seen the woman alive.

Dr. G. T. **Harrison** related a case of labor in which large doses of morphine were given, and the child was born apparently narcotized—indeed, without any signs of life. He related, also, a case where very large doses of morphine were given during pregnancy, and the child was born perfectly free from its effects.

Dr. P. F. **Mundé** related a case of labor in which he found the os dilated, with the exception of the anterior lip, but not the least expulsive effort on the part of the uterus. He gave twelve drops of Magendie's solution, with the result of causing hard and regular pains, which brought the head down to the perinæum within three-quarters of an hour. The anterior lip, which was the size of a hen's-egg, was wedged between the head and symphysis pubis, and was with difficulty slipped over the occiput, when the labor progressed favorably.

Dr. **Noeggerath** said that in Dr. Harrison's case the death of the child could not fairly be charged to the morphia. There were reasons enough besides the morphia to account for it. The question of the influence of morphia would have to be decided by its administration in entirely natural and short labors.

The second case did not prove anything, one way or the other. What the profession wanted was, experience in cases where morphia had been given during the two hours preceding labor.

Stated Meeting, February 5, 1878.

Dr. A. J. C. **Skene**, President, in the Chair.

Dr. **Hanks** exhibited a series of hard-rubber instruments for the rapid dilatation of the cervix uteri in case of abortion or fibroid. He had used them in a case of abortion, dilated rapidly, followed their use by a dose of ergot to expel the fœtus, and had an excellent result.

Dr. **Noeggerath** had employed Molesworth's dilators in three cases during the past year, where pregnancy was advanced to the third or fourth month or more, and had found them all that could be desired. They were not apt to burst if tested beforehand and each one not too fully dilated.

Dr. **Hanks** did not recommend his dilators in labor. He had found Molesworth's instruments apt to get out of repair.

Dr. **Chamberlain** had found Molesworth's dilators very satisfactory. He had once burst three sets, but no harm resulted. He had used them at the sixth, seventh, and eighth months, and also earlier.

Dr. **Noeggerath**, in regard to the use of ergot to expel the fœtus in abortion, said his own experience was that, at the second or third month, it did more harm than good. He had found the ovum, instead of being advanced, caught tightly by the internal os, which was thrown into a state of spasm. He now used belladonna, with or without opium, and was sure it had a much more favorable effect than ergot, which he had abandoned entirely in abortion from the first to the third month.

Dr. Thomas had never used ergot when the cervical canal was closed, but, under the circumstances in which Dr. Hanks had given it, he believed it caused rapid expulsion of the fœtus. He could not recall a single case where he had known a cervix uteri, which was once dilated, to contract under the use of ergot. He had simply been guided by that rule—never to employ it before the dilatation of the cervix. He observed the same rule at full term. The question of the danger of placental apnœa was not now under consideration, but only that of causing uterine contraction.

Dr. Skene thought Dr. Hanks's instruments would be difficult to introduce unless curved to suit the vagina and uterus. He was satisfied with the soft-rubber dilators, but the best of them would occasionally rupture, and he found it necessary to renew his bags nearly every time he used them.

Dr. Pooley, a guest of the Society, asked how long, in cases of abortion, where the fœtus was expelled, it was safe to wait before interfering for the removal of the placenta.

Dr. Skene said he would not wait more than five minutes but would interfere immediately. He had always taken the ground that every hour a portion of an ovum remained in the uterus added to the danger of septicæmia.

Dr. Noeggerath said the president had answered only half the question, and asked how long he would wait when the os was closed.

Dr. Skene said he should wait just long enough to dilate it.

Dr. Noeggerath said he never waited. The only safe rule was to remove under all circumstances, and dilate when the os was not dilated. There were, of course, cases where it was impossible or unwise strictly to follow out this rule—as when the patient was greatly exhausted from loss of blood.

Dr. Thomas did not think the question so easily answered. Dr. Pooley had asked one of the knottiest questions in obstetrics, and one of the most difficult to answer at the bed-side. The time that it was safe to wait with a placenta in the uterus could not be estimated. As soon as decomposition began septicæmia might begin, and removing the placenta might not prevent it. If a case were seen one week after delivery of the fœtus, and there were no symptoms of septicæmia, pulse and temperature being normal, and no hæmorrhage, it was not easy to answer the question whether to make an issue with that uterus and deliver by artificial means. In case of a very nervous patient in a precarious condition, he would not curette. If there was complete closure of the cervix, the question of interfering was an open one. He mentioned a case at the third month where the patient had a retained placenta, and a chill due apparently to decomposition, but in which a majority of consultants, contrary to his own judgment, decided not to interfere. The placenta had never been heard of, and the patient had since borne a child at full term.

In the case of a patient who had cast off the fœtus and was flooding, he was in the habit of relying upon the tampon. When this was used, the blood forced back into the uterine cavity tended to dilate the os, and detach the adherent fœtal shell, so that expulsion became both more easy and more certain.

Dr. **Noeggerath** fully coincided with Dr. Thomas in believing that there were many cases where no operation was advisable. Only four weeks ago he had seen, in consultation, a case of beginning miscarriage, and advised that the woman be let alone. Twenty-four hours later the fœtus was spontaneously expelled. His answer to the question, how long to wait if the fœtus is removed and the placenta remains, would be, "Never wait, unless there are certain conditions present in the patient which forbid the operation."

Dr. **Thomas** said he agreed perfectly with Dr. Noeggerath. He had been surprised, at the last meeting of the Academy, to hear that in Vienna it was considered good practice not to interfere with an adherent placenta.

Dr. **Noeggerath** said there were many cases reported where a placenta left *in situ* came away. He had seen cases, even in robust country-women, where he had regretted having interfered with the placenta. He had seen a case where, by inflammatory adhesion, the placenta had become organized and was a part of the uterus. In those cases there was generally no hæmorrhage and very little septicæmia, and they could be safely let alone.

Dr. **MUNDÉ** said he had seen adherent placentæ removed in Vienna, and the contrary method was certainly not the universal practice in that city.

Dr. **HARRISON** spoke of the method of dealing with the placenta by intra-uterine injections of hot water, which excited uterine contractions, and was followed by expulsion of the whole mass. He invariably used hot water in such cases, with carbolic acid, preceding its use by sponge-tents if necessary.

Dr. **NOEGGERATH** believed that method was now generally adopted.

Dr. **SKENE** still thought it the best practice to remove the ovum as soon as possible. He would go further than Dr. Thomas, and tampon the cervix, if necessary.

Dr. **MUNDÉ** thought a few rules might be formulated. If the placenta can be easily removed, let it be removed at once. If adherent, and not removable without too much force, let the tampon be used and ergot given for several days. If that was not sufficient, then advise to dilate and remove it, using disinfectants afterward. He had once had contractions come on after waiting four days.

Dr. **CHAMBERLAIN** related the case of a child to whom he was called in consultation, and whom he found apparently in the last stage of membranous croup. On careful examination, he had found the affection to be *laryngismus stridulus*, of reflex origin, as it disappeared on the removal from the rectum of a large plug of hardened fecal matter covered with mucus, and having for its nucleus a piece of feather.

Dr. F. J. **JENKINS** mentioned the case of a child twenty-three days old, which he had found cyanotic, and in a state of collapse, from an extensive syphilitic disease of the skin.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, January 23, 1878.

Dr. Jno. C. Peters, President.

Tracheotomy in Spasm of the Glottis.—Dr. Beverly Robinson presented a patient to the Society, upon whom he had performed tracheotomy for spasm of the glottis. The patient was a man aged fifty-four, who came under observation December 11, 1877. He had whooping-cough during 1857, and for the past seven years had had attacks of dyspnœa. These attacks at first appeared once in six months, and only while eating; but latterly they had been more frequent, and occurred at different times during the day. The patient suffered from vertigo at times, but the vision was normal. He was able to walk without difficulty. The breathing was good, except during a paroxysm of dyspnœa. An examination with the laryngoscope showed the fauces, uvula, and larynx to be congested. During the examination the patient was taken with a severe attack of dyspnœa, and fell down exhausted. Inhalations of ether were tried, but without benefit, as the respiration was not sufficient to allow the proper amount of the vapor to pass into the lungs. The patient was placed upon belladonna and bromide of potassium, but without material benefit. The uvula was then excised, under the hope that relief of the spasm might be obtained from its removal. No result, however, followed the removal. A local application, consisting of ʒ ij of tincture of iron to ℥ j of glycerine, was then made to the larynx, but the treatment was followed by a severe attack of dyspnœa. Chloral was prescribed, 10 grains every hour, but without relief. From the history given by the patient, it seemed that he might suffer from worms; but a course of medication with santonine failed to remove any worms from him. On December 21st the patient came to Dr. Robinson's office in a carriage, suffering considerably. He was advised to go to hospital, where tracheotomy was performed, Dr. Andrew H. Smith assisting at the operation. The patient did well after the operation, but on the succeeding day coughed up the tube. It was replaced by one of better form, and the patient passed a very comfortable time with the tube in position. On January 13th, while the fauces were being examined, an attack of dyspnœa came on, showing that trouble existed below the orifice in the trachea. Similar attacks subsequently appeared, which Dr. Robinson thought were due to spasmodic asthma. Dr. Robinson said that he had used Durham's tracheotomy tube, which, from its form, proved of value in being readily retained in the trachea. He considered it a marked improvement on the ordinary tracheotomy tube.

Dr. Austin Flint asked if the patient had been examined with the supposition of an aneurism connected with the arch of the aorta.

Dr. Robinson said he had examined the chest of the patient in order to detect an aneurism, but he had failed to find it.

Dr. Briddon had used the ordinary tracheotomy-tube for six months in a case of necrosis of the cartilages of the larynx, and had failed to experience any difficulty. He thought that the calibre of the ordinary tracheotomy tube was too small.

Hog-Cholera.—Prof. William Osler, of Montreal, read a paper on the hog-cholera which was existing in Canada, and presented numerous specimens which he had prepared, showing the pathological appearance of the intestines. He said the first symptom noticed in affected swine was an increase of the temperature from 103° to 110°, the normal temperature being 103°. Following this, the animal became heavy and thirsty. On the second week spots appeared on the abdomen. These spots, at times, were complicated with extravasations. Diarrhœa subsequently appeared, but was not always present. The disease ran its course in three weeks, but in some cases it proved fatal in as many days. The disease was contagious, the elements of contagion being furnished by the breath, the emanations from the skin, and the discharges from the intestines. The pathology of the disease was a vexed question, some holding that it was a species of typhoid fever, others that there was no resemblance to that disease.

Pathological Changes.—The large intestine was most frequently the seat of lesion. In only two of the cases examined by Dr. Osler was there any change in the small intestines, and this consisted in the deposit of diphtheritic membrane. The most striking change in the color was a crust not unlike syphilitic rupia, which existed on the mucous surface. There was neither ulceration nor presence of inflammation around the crusts. In some of the cases, instead of the crusts, there were noticed extravasations into the mucous and submucous tissues; in others, pea-shaped elevations. The lungs were frequently found to exhibit the caseous form of broncho-pneumonia.

The treatment of the disease was unsatisfactory, and the only method of limiting the disease was by quarantining suspected cases, killing them when the disease became manifest, and thus stamping out the disease.

Ulcer of Duodenum.—At the request of Dr. Flint, Dr. OSLER presented to the Society a specimen of ulcer of the duodenum which was removed from a patient who died in Montreal, and had been at one time under the observation of Dr. Flint. The history of the case was not complete. The patient had for six or seven years complained of pain in the region of the stomach, together with hæmatemesis. The pain was supposed to be a form of neuralgia. It occurred every autumn and spring, and continued for a month. The diagnosis of the case was made out shortly before death by a physician in Montreal. He based his diagnosis on the fact that hæmorrhage of the bowels occurred on one occasion without hæmatemesis.

In reply to Dr. Peters, Dr. OSLER said that there were neither ulcers nor cicatrices on the mucous membrane of the stomach.

Dr. PETERS said that the records of the Pathological Society showed that twelve cases of ulcer of the duodenum had been presented to the Society, and in no case had a correct diagnosis been made.

Stenosis of the Pulmonary Artery.—Dr. OSLER also presented a specimen showing stenosis of the pulmonary artery. It was removed from a child four months old. The child had only been slightly cyanotic during life. On opening the pericardium, the right auricle was found distended to the size of a small orange. The right ventricle was hypertrophied. The opening of the pulmonary artery was only nine-tenths of a millimetre in diameter, and allowed of the introduction of a Bowman's probe. Beyond the stenosis the vessel was of the ordinary size.

Stated Meeting, February 13, 1878.

Dr. John C. Peters, President.

Cerebral Tumor.—Dr. T. E. Satterthwaite presented a microscopical specimen of cerebellar tumor, with the following history: G. B., Germany, aged twenty-four, entered the Presbyterian Hospital August 13, 1877. He had been in good health till June, 1877, when he was seized with pain in the neck, situated near the last cervical or first dorsal vertebræ. This pain was not continuous, but at any time might be brought on by the patient leaning over.

In July the pain left the neck completely and appeared in the occipital region, and subsequently in the supraorbital nerve. The pain was never very severe, but became worse when the patient was in the recumbent position. Croton chloral was administered, first in 5-grain doses, and subsequently in 25-grain doses, but without any advantage. Ergot was given, but also proved valueless, as did also the bromide and iodide of potassium. During August, vomiting appeared, but did not continue. Morphia was administered on September 25th, but the patient said he received the most benefit from the use of iced cloths to the head. During October, phosphorus was given in doses of one-fifteenth of a grain, and from its use more benefit was obtained than from any other remedy.

In November, a seton was passed through the skin in the back of the neck. Following this, the pain shifted to the supraorbital region. The gait grew staggering, and on

November 20th the patient became cyanotic, and died. At the autopsy the brain was found anæmic, but the membranes congested. Between the hemispheres of the cerebrum a tumor was found. It was two inches in diameter, and closely resembled in appearance the brain-tissue. It encroached on either hemisphere, and could not be separated from them. There was no cyst-wall, and no line of demarkation between the tumor and brain-tissue proper. It was found, on microscopical examination, that the cells measured $\frac{1}{5000}$ of an inch. The ventricles of the brain were filled with fluid. An anomaly was noticed in the shape of a communication between the ventricles and pituitary body. The brain was so soft that it could not be presented to the Society. The usual signs of tumor of cerebellum were pain, a staggering gait, and vomiting, but in the case presented the pain was not always present. The staggering gait was only noticed late in the disease, and vomiting was not an important symptom. There was no disturbance of vision or hearing, no lack of coördination, and no anæsthesia. An ophthalmoscopic examination was not made.

Dr. Gibney asked what connection existed between the tumor and the supraorbital neuralgia.

Dr. Satterthwaite said no change was found in the fifth nerve. The tumor was not near enough to the pons Varolii to cause pressure on the roots of the fifth nerve. There might have possibly been pressure exerted by the fluid in the ventricles.

Tape-Worm.—Dr. Beverly Robinson presented a tapeworm 15 feet in length, which was passed from a patient after the use of one drachm of the oil of male fern. The symptoms complained of were vertigo and pain in the precordial region. An examination of the chest showed the presence of a systolic murmur at the apex of the heart.

THE THERAPEUTICAL SOCIETY OF NEW YORK.

(*Concluded from February Number.*)

Case IV.—Male, aged thirty years. Nephritis, third stage. Injection of 25 minims of a 2 per cent. solution, at 8 P. M.

HOUR.	Minutes.	Skin and Surface.	Alimentary Tract.	Remarks.	Pupils.	Pulse.	Respiration.	Temperature (in recto).
P.M. 8		Warm; dry.	Tongue moist; clean.		Normal.	90; full; strong.	20	101°
	2	Feels very warm; face flushed.	Mouth beginning to water.					
	3	Warmer; face more flushed; beads of sweat on brow and chest.	Nausea; retching; severe vomiting.	Carotids throbbing and full.				
	10	Very warm; perspiration general and marked.	Vomiting ceased; salivation very free.					
	15	Entire body is sweating profusely.	A copious stool, thin, green, like a calomel stool; again vomiting; singultus.	Heart sounds feeble.	Dilating; react to light.	96-102	30	
	20	Skin very warm; sweat streaming down face and neck.	Vomiting has ceased; salivation very free.	Heart sounds feeble.	Dilating; react to light.	96-102	30	
	30	Perspiration still profuse; surface very warm.	Nausea; retching; another stool, moderate, green; hiccough.	Feels faint; drowsy.	Beginning to contract.	96	36	
	40	Same as before.	Vomited again; salivation decreasing.	Drowsy.	Contracted.	90	30	
	50	Surface beginning to cool; still covered with beads of sweat.	Salivation less free.	Faint, and very drowsy.	Contracted.	90	30	
9		Skin cool; moist; clammy.	Salivation much less marked.	Very faint; weak, and sleepy.	Contracted.	90	30	99½°
	15	Cold; clammy; extremities very cold; numb.	Vomited again; salivation less and less.	Very drowsy.	Dilating.	90	30	
	40	Cold; moist.	Salivation almost ceased.	Chilly and cold.	Dilating.	90	30	97
P.M. 10		Cold; clammy.	Singultus.	Chilly and cold.	Dilated moderately.	90	24	
	30	Beginning to get warm, but still moist.			Dilated moderately.	90	24	98½
P.M. 11			Occasionally a mouthful of saliva.	Less chilly.	Dilated moderately.	90	24	
	30	Warm; chest still moist; soft.	Occasionally a mouthful of saliva.	Sleeping.				
M. 12		Warm, but chest still moist.	Salivation ceased.	Sleeping.	Normal.			
A.M. 2		Warm; dry.						
A.M. 5		Warm; dry.				90	24	99

more free. 8.28, slight perspiration on abdomen. 8.37, profuse salivation; no longer perspiring. 8.45, salivation still profuse. 9.00, diminished secretion of saliva. 10.40, salivation ceased.

Amount of saliva expectorated, ℥ ix.

Case VII. *Sciatica.*—Male, aged forty-four years. After the administration of an enema to clear the bowels, and after the act of urinating, at 10.20 A. M., pilocarp. mur., gr. ij, was administered by rectum. Pulse, 76; temperature, 98°. 10.31, feels a slight increase of moisture in mouth. 10.34, pulse, 72; beginning salivation; patient spitting every two minutes. 10.44, saliva ejected every minute. 10.54, increased amount of saliva ejected at same interval. 11.15, pulse, 68; salivation as before. 11.18, feels warmer; slight perspiration in axillæ, on chest, especially along sternum, where there is a moderate growth of hair. 11.30, slight perspiration on abdomen; salivation as before; pulse, 72. 11.33, very slight lachrymation of right eye. 11.37, saliva secreting somewhat more slowly. 11.39, saliva again ejected at shorter intervals. 12.00, feels somewhat weaker. 12.10, saliva ejected at intervals of four to five minutes. 12.17, feeling of chilliness; secretion of perspiration on chest ceased, in axillæ diminished. 12.27, perspiration no longer present in axillæ salivation still more markedly diminished than before. 12.30, salivation ceased; total amount, ℥ xiv. Secretion and character of urine not affected.

Insufficient effect was observed in the following case:

Case VIII. *Lumbago.*—Male, twenty-seven years of age. Patient rather anæmic, and of spare frame. Usually perspires moderately. 10.30 A. M., pulse, 84; temperature, 100¼°. After urinating, pilocarp. mur., gr. j, was injected into cellular tissue of arm, 10.52. 10.53, diffused redness over chest. 10.54, lachrymation of right eye. 10.54½, lachrymation of both eyes; redness of chest disappeared. 10.56½, beginning salivation. 10.59, momentary pain over origin of right gluteus maximus. 11.01, similar pain on moving thigh. 11.02, increased salivation, ejection occurring every three quarters of a minute. 11.05, lachrymation more marked in right eye. 11.15, passed ℥ x of urine. [Patient asserts that he did not evacuate the bladder completely on urination with defecation previous to injection.] Pulse, 96. 11.20, salivation as before; loud borborygmi. 11.26, dull and giddy sensation in head; pulse, 106, feeble. 11.41, slightly diminished salivation; an ejection every 1¼ minute; pulse, 112. 11.45, pulse, 120; respirations, 24. 11.54, pulse, 112; respirations, 27. Ejection of saliva every two minutes. 12.02, no trace of perspiration. 12.08, pulse, 112; respirations, 28. 12.18, ejection of saliva at intervals of 2½ minutes. 12.22, pulse, 100. 12.40, thirsty. 12.45, ejection of saliva at intervals of five minutes. 1.22, salivation ceased; no perspiration.

Amount of saliva secreted, ℥ ivss. Examination of urine: specific gravity, 1021; no albumen. Microscopical examination reveals nothing abnormal.

Two days after, the experiment was repeated on the same person.

After urinating, pilocarp. mur., gr. j, was injected into cellular tissue of back. At 10.22 A. M., pulse, 92; temperature, 98¾°. 10.26, beginning lachrymation. 10.28, beginning salivation. 10.30, increased lachrymation, especially of left eye. 12.48, lachrymation ceased. 12.50, salivation ceased.

Perspiration did not ensue. Amount of saliva secreted, ℥ iv. Urine: specific gravity, 1022; urates, a few crystals of oxalate of lime, uric acid; no albumen.

The main effects observed were: Flushed appearance of face—also of chest; a few times of the whole surface; feeling of warmth over head and face, also over body; some dizziness, and fullness of the head; a few times momentary dyspnœa; lachrymation; perspiration over face, head, axilla, chest, over the whole body, usually very copious, lasting 1 to 2 hours after a dose of one-third of a grain of the alkaloid; 3 to 4 hours after, two-thirds; 5 hours in one case, in which 1 grain was injected. Salivation amounting to from 5 to 17 ounces in 2 hours. Chilly sensations, and feeling of intense cold; nausea; vomiting; pain in hypogastric region; vesical tenesmus and even strangury; desire for defecation, and diarrhœa. In a few cases a small amount of albumen in the urine, the quantity of which latter was greatly reduced. Pupils somewhat dilated in the beginning in a few cases, afterward contracted in about 50 per cent.; very narrow, as in opium-poisoning, in a few. Pulse and respiration increased at first, less frequent afterward. Temperature reduced by one or two degrees about the termination of the general effect. General weakness in a few cases, easily overcome by stimulation. Collapse in one, with feeble respiration; immovable pulse; cold surface, which was overcome, however, by brandy, ether, musk.

The affections for or in which pilocarpium has been administered by me or my collaborators have been: Simple catarrhal fever, muscular and articular rheumatism, lumbago, sciatica, acute bronchitis, chronic bronchitis and emphysema, phthisis pulmonum, onanism, ichthyosis (Piffard), acute nephritis, chronic nephritis, with acute pulmonary œdema (Polk, Canfield), amyloid degeneration of kidneys, cirrhosis of liver, hydrops from mitral incompetency, empyema, convalescence from remittent fever, and from enterocolitis. The effect has been almost instantaneous in most cases; in a few it took 8 or 10 minutes to develop itself; in one, 1½ hour; in a few it was very insufficient, particularly as far as perspiration is concerned; in two, no perspiration appeared whatsoever, while salivation was observed. Where it appeared once, it reappeared speedily on repetition of the dose, even in the very last minutes of life, though no surface-flush was observed. It was most certain when the administration was subcutaneous; given by mouth or rectum, the effect of the drug, even in six times the dose, leaves much to desire both in intensity and localization; for perspiration is trifling when compared with salivation, and sometimes even with lachrymation.

Its principal laurels, the subcutaneous administration of pilocarpium will reap in the desquamative nephritis of scarlatina, in the parenchymatous nephritis of diphtheria, and in acute and chronic nephritis generally. There is no doubt but that a complete diaphoretic effect is, with rare exceptions, obtained with more regularity and rapidity than by any other diaphoretic, even the hot pack. Very large dropsical effusions have been removed in a comparatively short time. Acute pulmonary œdema has been removed speedily.

Of Demme's 18 cases of scarlatinous nephritis, but two died, and these of total gradual exhaustion only. In connection with diphtheritic nephritis, he also suggests that the copious discharge from the mucous membranes will improve the chances for the softening and expulsion of diphtheritic exudation.

Sufficient doses appear to affect all the integuments, both those covered with cylindrical and pavement epithelium. After a few not quite satisfactory experiments, it has occurred to me that some of my doses were too small. Rosenkranz and Fronmüller gave one grain, and prolonged the effect to 5 hours. Perspiration, lasting 4 hours, I have seen from the same dose given once. Such a dose will probably be required for accomplishing a beneficial effect on pleural, peritoneal, and pericardial effusion, perhaps in œdema glottidis also. Still, as collapse has been observed, large doses ought to be given carefully. Where there is no urgent necessity for the very speediest action, moderate doses, repeated if advisable, promise greater safety, if nothing else.

One of the principal effects of jaborandi and its alkaloid appears to be the lowering of arterial pressure. This result was first obtained by Langley, who stopped the action of the venous sinuses and auricles by jaborandi locally applied, particularly when atropia was simultaneously applied to the ventricles. Contrary to Vulpian, he found the heart's action reduced in animals under the influence of woorara.

The reduction of arterial pressure has also been demonstrated by the experiments of Kahler and Soyka. From their results, they draw conclusions as to the indications and contraindications of pilocarpium which ought to be avoided, wherever the arterial pressure is low, particularly in the pulmonary circulation. According to them, it ought not to be administered in valvular diseases of the heart, particularly where no compensation has taken place. The same contraindication would be valid for pulmonary affections, such as emphysema complicated with dropsy. There, jaborandi may increase its asthma, cyanosis, and symptoms of collapse. That it must be avoided in muscular debility of the heart, such as results from fatty degeneration, would follow as a matter of course.

These theoretical conclusions, however, do not fully correspond with experience, and will, therefore, have to be reëxamined. One of the most recent observers (Demme) encountered no unfavorable effects of the administration of pilocarpium in valvular diseases insufficiently compensated. In that connection, however, he claims as an anomalous case that of a boy with mitral incompetency, in whom the full effect of pilocarpium was exhibited in from 2 to 3, and lasted only 8 or 10 minutes. This insufficiency of the effect I cannot, however, admit as depending on the cardiac disease. In a few cases, I noticed partial failures where there was no heart complication whatsoever. Individual peculiarities come in for their share in the variations of the effects of almost any drug. In 7 cases of heart diseases, I have used pilocarpium without any bad symptoms. I always administer an alcoholic stimulant before, or soon after, the administration of the alkaloid. The worst case of collapse which has come to my notice was not at all connected with heart disease. It occurred in a child of 4 years, who suffered from nephritis, and finally recovered, under the free use of brandy (subcutaneously), camphor, either, and musk.

Dr. SEGUIN asked if the sphygmograph had been used to ascertain the effect upon vascular tension.

Dr. JACOBI replied that it had been by some observers in Germany, and that it indicated lowering of tension.

Dr. POLK stated that he had observed three cases in which the use of jaborandi had removed œdema of the lungs.

Dr. JACOBI said that some such cases were recorded.

Dr. SQUIBB inquired what amount of loss of weight had been observed to follow the use of pilocarpine.

Dr. JACOBI replied that, in some experiments of Demme on children, the loss was from 120 to 675 grammes.

He also stated that the effects of pilocarpine were counteracted by atropia, but that pilocarpine was not an antidote for atropia. When applied locally to the heart, pilocarpine was capable of arresting action, but this effect could be prevented by applying atropia at the same time.

Dr. POLK inquired if Dr. Jacobi had witnessed any ill effects from the use of the drug in cardiac dropsy.

Dr. JACOBI replied that he had employed it very cautiously, and had observed no ill effects. Demme asserted that it could be used with great benefit.

Dr. POLK stated that in one instance he had derived great advantage from it. The patient, who could not lie down at all, was now able to rest in a nearly horizontal position. Whenever the medicine was withheld for a short time he would ask to have it resumed.

Dr. A. H. SMITH inquired whether the remedy lost its effect in any degree by frequent repetition.

Dr. JACOBI replied that such did not seem to be the case.

Bibliographical and Literary Notes.

ART. I.—*Lectures on Fevers.* By ALFRED L. LOOMIS, A. M., M. D., Professor of Pathology and Practical Medicine in the Medical Department of the University of the City of New York; Consulting Physician to the Charity Hospital, etc., etc. 8vo., pp. xii.–408. New York: Wm. Wood & Co., 1877.

WHILE it may seem that a new treatise on "Fevers" is scarcely called for at the present time, we are glad that Prof. Loomis has consented to the publication of his lectures, for the reason that they will be likely to exert an influence upon a class of practitioners in this country who would not otherwise fall in with recent changes in the treatment of fevers.

The author, in these lectures, does not grapple to any great extent with those pathological questions which are beyond his ken, nor does he aim to fully discuss intricate questions which are already tolerably well understood. Special consideration is not given to the nature or to the mechanism of fever, yet in the "Introduction" the nature of the viruses giving rise to the morbid conditions of the blood in fevers is somewhat discussed. We will proceed to analyze briefly some of the author's teachings.

The several individual fevers are classified upon an etiological rather than upon a pathologico-anatomical basis, being classed as contagious, malarial, and miasmatic-contagious. The order in which these classes are considered in the text is reversed. In the last named—miasmatic-contagious—are included typhoid and yellow fever; in the second, or malarial, are included simple intermittent, simple remittent, pernicious, dengue, and typho-malarial fevers; and the first class—contagious—includes typhus, relapsing, scarlet, and miliary fevers, small-pox, and measles.

Dr. Loomis, in discussing the nature of viruses, mentions, in turn, some of the theories which have been more or less prevalent of late, such as the fermenting or chemical theory, and the germ theory, or that of living organisms, either vegetable or animal, in nature. This last-named theory, which has become so fashionable of late, especially across the water, is discountenanced by the author. He says, in regard to the bacterian theory, "that one who has watched bacterian development must arrive at the conclusion that bacteria found in connection with the development of disease are the product, and not the cause, of the diseased processes;" and further declares, on page 4, that "certain it is that the theory that there exist distinct typhoid, typhus, and diphtheritic living germs, which are the propagating element of these different diseases, still lacks that proof which will lead the practical physician to adopt it." He sums up the discussion with the following statement: "After reviewing these differing theories, and giving careful attention to the facts presented in their support, we arrive at this conclusion: that the exact nature of these morbific agents is unknown. We know that they exist, from the diseased action which they produce; and, from the manner in which these diseases are propagated, we decide that their poisons are distinct from all other poisons, and that each is specific, and can reproduce itself to an unlimited extent. The germ theory best explains the phenomena of development. The chemical theory has decided claims on our acceptance; but, until our explorations shall have been carried so far as to determine, beyond question, what is the exact nature of several of these poisons, we shall be compelled to call them unknown morbific agents, governed by certain fixed laws of development and propagation. At the present time investigation in this direction has scarcely begun."

The author very speedily passes to the consideration of the individual diseases, commencing with that of typhoid fever. The discussion is not nearly so full as that of Liebermeister in "Ziemssen's Cyclopædia," yet the principal facts relating to the disease are introduced. Dr. Loomis is not a believer in the doctrine of critical days, nor does he think the parenchymatous changes are due to the high temperature, but rather to the special poison of the fever—thus differing from some very excellent German authorities. He is also uncertain whether the cerebro-spinal symptoms are due to the high temperature, or to the primary action of the typhoid poison. We are in accord with the author on the point relating to critical days; but, with regard to the other points of difference, it may be stated that one fact is apparently in support of the German view, namely: the earlier thorough antipyretic treatment is adopted, and the more completely it is kept up, the less marked will be the ataxic symptoms, and the less apparent will be the anatomical changes throughout the body.

We are somewhat surprised at a statement found on page 25: "A person who has had typhus or scarlet fever is not likely to have a second attack; but no such immunity follows an attack of typhoid fever."

The fact that exceptional cases of recurrence are known, does not establish the rule that there is no immunity from a second attack. Our own experience would lead us to think that, as a rule, exclusive of relapses, typhoid fever occurs but once.

The author accepts as established the view that the special poison of the disease exists in the excreta, which by decomposition become virulent, and, by gaining access to the air, or to drinking-water, are either inhaled or imbibed, and thus cause the disease. He thinks the elimination of the poison is not hastened or effected by diarrhœa.

The special treatment recommended for the disease is antipyretic, by means of baths and the internal administration of quinine. In the employment of baths, we are advised to graduate the temperature of the water according to the method adopted by Ziemssen. The temperature is allowed to reach 103° Fahr. in the axilla before resorting to the bath, then the patient is kept submerged until the temperature in the rectum falls about 2° Fahr. A good deal of explanation in regard to the employment of water, together with many cautions, is given. The author says it is unsafe to employ it after two weeks. He speaks very highly of the use of quinine, and we are able to bear testimony in favor of its employment. He says the entire dose should be given within two hours. Liebermeister, however, thinks it ought to be administered within a period of thirty minutes, if possible, or, at longest, within an hour. For nourishment, we are glad that milk is especially recommended in sufficient quantity, although we are cautioned against overloading the stomach. Stimulants are to be cautiously employed on the approach of heart-debility. It will be observed that the author seems to be less thorough in the employment of the water-treatment than some who recommend it. For our own part, we are pleased with his caution; yet, if his rules of caution are carefully observed, we need not allow the fever to run so high before resorting to the bath, or to quinine. Moreover, if the treatment is commenced quite early, and the temperature kept below 102.2° Fahr. in the axilla in the later stage, the vitality of the patient will bear the bath, or, at any rate, packs, without disadvantage.

In this connection we will state what is said with regard to the antipyretic treatment of scarlet-fever: "If the temperature rises above 103° Fahr.—certainly if it rises above 104° Fahr.—it is important that some measures be resorted to for its reduction. The temperature should never be allowed to remain at 104° Fahr. longer than twenty-four hours. The means which are to be employed to accomplish this reduction are the antipyretic measures already referred to, such as the application of cold to the surface by means of sponging and baths, and the administration of large doses of quinine. . . . We should be governed by the same rules, in the application of cold to the surface in scarlet-fever, as govern us in the treatment of typhus and typhoid fevers" (page 332).

An apparent discrepancy occurs on the following page, owing, perhaps, to a slip of the tongue in the delivery of the lecture: "Unless the temperature, in a case of scarlet-fever, ranges above 105° Fahr.,[1] do not apply cold to the surface, nor give quinine in antipyretic doses. With such a temperature there will probably be delirium, but it must be regarded as one of the phenomena of the disease, requiring no special treatment. If the temperature rises above 105° Fahr.—perhaps reaches 106° or 107° Fahr.—and the patient manifests the nervous phenomena which have been referred to, such as restlessness, tossing, blueness of the surface, tendency to coma, etc., your duty is to reduce the temperature, either by the application of cold to the surface, or by the administration of one or two antipyretic doses of quinine. In all cases, let the patient be sponged freely with tepid water, and, if there is intense burning of the surface, add a saline to the water."

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[1] Where not otherwise specified, the axillary temperature is meant.

It would be gratifying to the reader to know which advice the author intends to have followed. He says the application of oil to the surface does not reduce temperature.

Dr. Loomis defines typho-malarial fever as a disease "denoting a fever which is produced by the combined action of a *septic* and of a *malarial* poison," having none of the elements of typhoid-fever poison proper.

The work is clearly and concisely written, and will be useful and acceptable to both student and practitioner.

ART. II.—*The Question of Rest for Women during Menstruation.* By MARY PUTNAM JACOBI, M. D., etc. G. P. Putnam's Sons, 1877.

THE question of the necessity of a special season of rest for women has attracted so much attention that the Boylston Medical Committee, in order to bring out discussion and to stimulate investigation, proposed it as one of the subjects for competition for the Boylston Prize Essay. The volume before us, to which the prize was awarded, is the result.

As a specimen of careful research, close reasoning, and of investigation in the true scientific spirit, it has had few equals in late American medical publications. In these respects we can commend it as a model.

The introduction is followed by a carefully-prepared, and, therefore, very valuable, *resumé* of the opinions in regard to menstruation, which have been held in the past, and to general considerations in regard to labor.

Following these are the records of the menstrual history of 268 women, obtained for the purpose by the author. These are carefully and fairly analyzed, and the deductions are, in the main, fair.

We object, however, to any decided conclusions being drawn from so small a number of cases. Had all the tables prepared (1,000) been returned, the value of these statistics would have been great. It is a curious commentary, that, although the returns were to be made to a woman, so few of them were sent back. But the number of cases is altogether too small to justify any conclusions, as, we have no doubt, will be shown by other and similar investigations which, we prophesy, will soon follow.

The next point considered is the theory of menstruation. One after another the different theories are taken up and disposed of. The writer adopts neither the ovular theory, nor the desquamative theory, in its entirety. She considers that "some other cause for hæmorrhage must exist than the mere desquamations of the mucous membrane." "The cause of menstruation is not located exclusively in the uterus."

Putting forward, then, the "hypothesis that the menstrual period represents the climax in the development of a surplus of nutritive forces and material," she tries to discover if there is, as would be expected, "a rhythmic wave of nutrition gradually rising from a minimum point just after menstruation, to a maximum just before the next flow." This she does by measuring the excretion of urea, the arterial tension by the sphygmograph, muscular force by the dynamometer, etc. All these observations, admirable though they may be, are too limited in number to form a firm basis for the very far-reaching theory which is founded upon them. The excretion of the urea, in the present vexed state of the question, must be left out of any such calculations.

We regret, exceedingly, that the counting of the blood-corpuscles was not added to the other experiments. This the author promises to us later. The conclusion at which the author arrives is, that "there is nothing in the nature of menstruation to imply the necessity, or even the desirability, of rest for women, whose nutrition is really normal. Whereever women exhibit mental irritability, and consequent weakness at or before menstruation, it is a proof that the resistance of the nerve-centres is weakened below the normal standard, sometimes congenitally and by inheritance;" and the woman will be "subjected to periods of temporary incapacity, of varying degrees." "In these cases rest is desirable, whatever period of the month the nervous excitement may be experienced;" and this will be more generally before than during the flow.

In regard to school-girls, who must "perform mental work to order," the author says that, "during the first year that the reproductive wave of nutrition is being formed, mental work, exacted in excess of the capacity of the individual, may seriously derange the nutrition."

"It is to the development of a supplemental wave of nutrition, and the manner in which it intersects the waves of individual nutrition, that are due most of the peculiarities of the female organism, and of its activity, and not the mere existence of reproductive organs."

The author holds that "women do work better, and with greater safety to health, when their work is frequently intermitted; but that those intermittences should be at short intervals, and lasting a short time—not at long intervals, and lasting longer. Finally, that they are required at all times, and have no special reference to the period of the menstrual flow." The book closes with the following significant paragraph:

"It remains true, however, that, in the existing social conditions, 46 per cent. of women suffer more or less at menstruation; and for a large number of these, when engaged in industrial pursuits, or when under the command of an employer, humanity dictates that rest from work during the period of pain be afforded whenever practicable."

Practically, then, it seems as if the author admitted nearly all the points made by Dr. Clarke and his side, shifting only the grounds on which they are to stand.

The main faults of the book—and they are serious ones—are the arrangement and style, and, as has been suggested, the want of an index. The arrangement of the parts is such, that it is very difficult to follow the steps of the argument; and the literary style is so very heavy and cumbersome as to spoil all the pleasure which would otherwise be derived from reading the book. While the question is as yet by no means settled, we must look on this effort as by far the most important contribution which it is likely to receive for some time.

ART. III.—*The Elements of Therapeutics. A Clinical Guide to the Action of Medicines.* By Dr. C. BINZ, Professor of Pharmacology in the University of Bonn. Translated from the Fifth German Edition, and edited, with Additions, in Conformity with the British and American Pharmacopœias. By EDWARD I. SPARKS, M. A., M. B., Oxon., Member of the Royal College of Physicians of London, etc. New York: Wm. Wood & Co., 1878.

THERE have been so many works on therapeutics issued of late, that it must be often perplexing to the student to make a choice. Each work has some special features of excellence, but there is of necessity much repetition in all. The volume before us has the merit of containing a large amount of information within a small compass. Yet a very few of the 348 pages would contain all that is really original in the entire work. There are, it is true, many references to authorities not found in American books on therapeutics, from which the careful student will not fail to derive profit. The translator has adapted the text to this country; but for American students—especially for beginners—we should recommend, first, some good American work, as a foundation for an intelligent and practical study of the science and art of therapeutics. There is some little confusion in the matter of headings, and there are some trivial errors besides the list to which attention is directed at the end of the volume. For instance, under "Apomorphia," in the index, we are referred to page 249, where not a word on the subject can be found.

ART. IV.—*Practical Gynæcology. A Hand-Book of the Diseases of Women.* By HEYWOOD SMITH, M. A., M. D., Oxon., Member of the Royal College of Physicians, Physician to the Hospital for Women, and to the British Lying-In Hospital. Philadelphia: Lindsay & Blakiston, 1878.

IN the attempt to make a small book the author has gone to the extreme of brevity, and has omitted much that even the tyro in diseases of women should be familiar with. In many respects the work is little more than a dictionary, the definitions being very brief. The object of the author has been to give the "salient points of diagnosis and treatment with clearness and brevity." We cannot imagine that any general practitioner would be content with merely an outline of so important a branch of medicine. Unless it were for the purposes of a student cramming for examination, we should say, "Buy a more a more complete treatise on the subject, or none at all." Even as far as it goes, the work is not up to the level of gynæcological science in this country. We feel sure that, with more space at his command, the author could prepare a much more useful book.

ART. V.—*Landmarks: Medical and Surgical.* By LUTHER HOLDEN, F. R. C. S., Surgeon to St. Bartholomew's and the Foundling Hospitals. From the Second English Edition. Philadelphia: Henry C. Lea, 1878.

THESE "Landmarks" originally appeared in the reports of St. Bartholomew's Hospital, and in 1876 were published separately for the benefit of students, and proved exceedingly useful and acceptable. The purpose of the author is to teach by surface-marks, such as lines, or depressions, or eminences, what lies beneath. The greatest familiarity with the anatomy of the dissecting-room does not necessarily make it easy to recognize given points in the living subject by surface indications. The new edition has been carefully revised, with a view to correctness in every detail; and the work has been rendered more convenient for reference by the introduction of conspicuous headings for each subject.

ART. VI.—*Colds and Coughs: Their Causes and Consequences. Notes of Lectures delivered at Gresham College.* By E. SYMES THOMPSON, M. D., F. R. C. P., Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, etc. Pp. 120. Philadelphia: Lindsay & Blakiston, 1878.

THIS is a concise description of the various forms of colds and coughs, well adapted for popular reading. Many valuable hints are given as to the prevention of colds, and also as to their management when contracted. The treatise concludes with a chapter on the selection of a suitable climate for invalids affected with diseases of the lungs. The tone of the work is rather colloquial than professional, but the advice given is, for the most part, sound and sensible.

ART. VII.—*On the Uses of Wines in Health and Disease.* By FRANCIS E. ANSTIE, M. D., F. R. C. P., Late Physician to the Westminster Hostal, and Editor of the *Practitioner.* (Reprinted from the *Practitioner.*) London: Macmillan & Co., 1877.

THIS classical essay on wines, by the late Dr. Anstie, contains the fullest and most careful analysis yet published of the effects and properties of the various forms of wine. It will well repay perusal.

ART. VIII.—*Cerebral Hyperæmia the Result of Mental Strain or Emotional Disturbance.* By WILLIAM A. HAMMOND, M. D., Professor of Diseases of the Mind and Nervous System in the Medical Department of the University of New York, etc., etc. Read before the New York Neurological Society, November 5, 1877. New York: G. P. Putnam's Sons, 1878.

THIS will be found a very interesting essay on the symptoms, causes, diagnosis, pathology, and treatment, of a cerebral condition which, unrecognized or neglected, tends rapidly to a fatal issue. The work is very clearly and logically written, and adapted almost as well to the general as to the professional reader.

ART. IX.—*Hand-Book of the Practice of Medicine.* By M. CHARTERIS, M. D., Professor of the Practice of Medicine, Anderson's College, Glasgow; and Physician and Lecturer on Clinical Medicine, Glasgow Royal Infirmary. With Illustrations. Pp. 386. Philadelphia: Lindsay & Blakiston, 1878.

As a hand-book this volume is very satisfactory. It presents a clear and comprehensive outline of the whole range of practice, and is evidently the result, in great part, of experience, and not a mere compilation. The author has purposely avoided the discussion of disputed points, and confined himself to ascertained facts. The classification and arrangement of the work are such as to facilitate either study or reference. Such books as this have their uses, but of course are by no means intended to take the place of the larger works. On the contrary, they should rather encourage a fuller study of the subjects presented in outline, and aid in impressing the salient points.

Books and Pamphlets Received.—Transactions of the Medical Society of the State of New York for the Year 1877. Pp. 480.

A Reprint of the Pamphlets of Dr. H. C. Wood, Mr. Alfred B. Taylor, the Philadelphia County Medical Society, and the National College of Pharmacy, with a Rejoinder addressed to the Professions of Medicine and Pharmacy of the United States. By Edward R. Squibb, M. D., of Brooklyn.

A Succinct History of the Plan of Treatment of Pott's Disease by Suspension and the Use of Plaster-of-Paris Bandage. By Lewis A. Sayre, M. D., Professor of Orthopœdic Surgery, Fractures and Dislocations and Clinical Surgery in Bellevue Hospital Medical College, New York. (From January Number of *Richmond and Louisville Medical Journal.*)

Certain General Considerations respecting the Mechanical Treatment of Chronic Diseases of the Joints; with special reference to the Use of Traction. By L. M. Yale, M. D., Surgeon to Bellevue Hospital; Lecturer Adjunct upon Orthopœdic Surgery in the Bellevue Hospital Medical College. (Reprinted from *The Medical Record* of January 12, 1878.)

Address before the Rocky Mountain Medical Association, June 6, 1877. Containing some Observations on the Geological Age of the World, the Appearance of Animal Life on the Globe, the Antiquity of Man, Remains of Extinct Races, etc. By J. M. Toner, M. D. Washington, D. C.: Published for the Association, 1877. Pp. 112.

On Certain Points relating to the Nature and Treatment of Lupus. By Henry G. Piffard, A. M., M. D., Professor of Dermatology in the University of the City of New York, Surgeon to Charity Hospital, etc. (Extracted from the "Transactions of the Medical Society of the State of New York," 1877.)

On the Treatment of Chronic Eczema by a Glycerole of the Subacetate of Lead. Second Edition, by Balmanno Squire, M. B., Lond., Surgeon to the British Hospital for Diseases of the Skin. (Reprinted from the *Medical Times and Gazette*, March 18 and 25, 1876.) With an Appendix. London: J. & A. Churchill, 1878. Pp. 44.

A Series of American Clinical Lectures. Edited by E. C. Seguin, M. D. Vol. III., No. 6. The Etiology and Pathology of Chronic Joint-

Disease. By Newton M. Shaffer, M. D., Surgeon to the New York Orthopœdic Dispensary and Hospital, and Orthopœdic Surgeon to St. Luke's Hospital.

Case of Helen Miller. Self-Mutilation. Tracheotomy. Reported by Walter Channing, M. D., Late Assistant Physician New York State Asylum for Insane Criminals. (From the *American Journal of Insanity*, January, 1878.)

Surgical Uses other than Hæmostatic of the Strong Elastic Bandage. By Henry A. Martin, M. D., Brevet Lieutenant-Colonel and Late Surgeon United States Volunteers. (Reprinted from the "Transactions of the American Medical Association" for 1877.)

The Obstetric Forceps. An Improvement in their Construction. By J. A. McFerran, M. D., Physician to the Gynecological Hospital, Philadelphia. (Reprinted from the *Medical and Surgical Reporter*, December 1st and 8th.)

On the Treatment of Psoriasis, by an Ointment of Chrysophanic Acid; with an Appendix of Comments by various Authors. By Balmanno Squire, M. B., London, Surgeon to the British Hospital for Diseases of the Skin. London: J. & A. Churchill, 1878. Pp. 100.

Contributions to the History of Medical Education and Medical Institutions in the United States of America. 1776–1876. Special Report prepared for the United States Bureau of Education. By N. S. Davis, A. M., M. D.

An Inquiry into the General Pathology of Scurvy. By Charles Henry Ralfe, M. A., M. D., Cantab., Senior Physician to the Seamen's Hospital (late Dreadnought), Teacher of Physiological Chemistry in the Medical School of St. George's Hospital. (Reprinted from the *Lancet.*)

Studies in Pathological Anatomy. By Francis Delafield, M. D., Adjunct Professor of Pathology and Practical Medicine, College of Physicians and Surgeons. No. I., February, 1878. New York: Wm. Wood & Co., 1878.

Dermatology in America: Being the President's Address before the First Meeting of the American Dermatological Association, at Niagara Falls, New York, September 4, 1877. By James C. White, M. D. (Reprinted from the "Archives of Dermatology," January, 1878.)

Transactions of the Canada Medical Association. Tenth Annual Meeting, Montreal, September 12 and 13, 1877. Vol. I. Montreal: Lovell & Co., 1877. Pp. 244.

The Truth Admitted. The Columbia Hospital for Women, and Lying-In Asylum. By a Citizen of Washington, D. C. (From January Number of *Richmond and Louisville Medical Journal.*)

Sixth Annual Report of the New York Free Dispensary for Sick Children, 217 East Forty-seventh Street, for the Year ending December 31, 1877.

Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons. Sessions: Media, June 6–8, 1876; Columbus, June 12–15, 1877.

Etiology of Enteric Fever. By J. L. Cabell, M. D., of the University of Virginia. Reprinted from the "Transactions of the American Medical Association."

House-Air the Cause and Promoter of Disease. By Frank Donaldson, M. D., Professor of Physiology and Hygiene, University of Maryland. Reprinted from "Maryland State Board of Health Reports," January, 1878.

Annual Medical Directory. Regular Physicians of the State of Illinois. For the Year 1878. T. A. Emmons, M. D., Editor and Publisher. Chicago: McCabe & Co., 1878.

Malaria and Struma, in their Relation to the Etiology of Skin-Diseases. By L. P. Yandell, Jr., M. D., Louisville, Ky. (Reprinted from *American Practitioner*, January, 1878.)

A Study of Nine Hundred and Sixty-five Cases of Chronic Pulmonary Disease. By F. H. Davis, of Chicago, Illinois. Extracted from the "Transactions of the American Medical Association."

State Regulation of Vice. Regulation Efforts in America. The Geneva Congress. By Aaron M. Powell. New York: Wood & Holbrook, 1878.

Braithwaite's Retrospect of Medicine. Vol. LXXVI. July to December, 1877. London: Simpkin, Marshall & Co. New York: W. A. Townsend.

Transactions of the Thirty-second Annual Meeting of the Ohio State Medical Society, held at Put-in-Bay, June 12, 13, and 14, 1877. Cincinnati: Malory & Webb, 1877. Pp. 202.

Report of the Pennsylvania Hospital for the Insane, for the Year 1877. By Thos. S. Kirkbride, M. D., Physician-in-Chief and Superintendent. Philadelphia, 1878.

Des Tremblements consécutifs aux Maladies Aigues. Par le Dr. E. Clément, Professeur agrégé à la Faculté de Médecine, Médecin des Hôpitaux de Lyon. (Reprinted from the *Lyon Médicale.*)

On the Surgical Treatment of Perityphlitic Abscess. By J. H. Pooley, M. D., Professor of Surgery in Starling Medical College, Ohio.

Address of Dr. Frank H. Hamilton, delivered at the Anniversary of the Woman's Hospital, New York, November 22, 1877.

Fifty-second Annual Report of the Massachusetts Charitable Eye and Ear Infirmary, for the Year 1877.

Fourteenth Annual Report of the Board of State Charities of Massachusetts. January, 1878. Public Document No. 17.

Circular No. 10. Approved Plans and Specifications for Hospitals. Surgeon-General's Office, Washington, October 20, 1877.

A Manual of Nursing prepared for the Training-School for Nurses attached to Bellevue Hospital. New York: G. P. Putnam's Sons, 1878.

Twenty-Fifth Annual Report of the Pennsylvania Training-School for Feeble-Minded Children, Media, Delaware County.

Reports on the Progress of Medicine.

CONTRIBUTED BY DRS. GEORGE R. CUTTER, EDWARD FRANKEL, AND W. T. BULL.

SURGERY.

Treatment of Transverse Fractures of the Patella and Olecranon Process.—Schede (*Centralblatt für Chirurgie*, 42, 1877) considers the obstacle to bony union in these fractures to be not so much the difficulty of coaptation as the delay (two weeks) in applying apparatus, occasioned by waiting for the absorption of effusion into the joint and the overlying bursæ. For the patella this treatment is recommended: Puncture of the joint (and the bursa patellæ, if necessary) with a good-sized trocar, with antiseptic precautions, injection of 3-per-cent. solution of carbolic acid, closure of the wound with a piece of protective silk and a ball of salicylic cotton, approximation of the fragments by means of adhesive straps, and a gypsum splint from the ankle to the hip. The splint and plaster should be replaced by a second similar dressing at the end of eight days, and by a third in eight or ten days more. In three (3) cases bony union was obtained, the bursa patella being punctured in but one. In two others, a short ligament united the fragments. In these, failure is attributed to omission of some of the details above given—e. g., irrigation of the joint and renewal of dressing. In a large number of fractures of the olecranon in which bony union resulted, fixation of the fragments with adhesive straps and the plaster-of-Paris splint (in extended position), with frequent renewal, was the method employed. No case yet has demanded puncture of the joint. W. T. B.

Morphine and Chloroform Narcosis.—(König, in *Centralblatt für Chirurgie*, 39, 1877, and Hueter, *Idem*, 43, 1877.) König recommends strongly this combination. It is especially valuable in drinkers, and those who, for various reasons, are questionable subjects for chloroform, and in operations, too, which do not permit profound narcosis, as those about the face. One or two, or even three, hypodermic injections of one-fifteenth to one-seventh of a grain of sulphate of morphia precede the chloroform, and the patients are rendered insensible to pain, yet not wholly unconscious.

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[illegible] is found it is declared to be secondary and produced by the pyæmia; while in reality it is the suppuration of the wound, left to itself and not treated energetically, which has ended by infecting the blood."—*Gaz. Méd. de Strasbourg* and *Jour. des Sciences Méd. de Louvain*, September, 1877. G. E. C.

The Relation of Rheumatism to Traumatism.—In a work recently published M. Verneuil studies the relations between traumatic lesions and constitutional diseases, more particularly those between traumatism and arthritism. In studying this question, the coincidence between the patient's injury and the constitutional malady should be first established, and then the case will come under one of the following categories: 1. The injury and the diathesis exist together, without appearing to influence each other in any manner. 2. The traumatism modifies materially the evolution of the constitutional disease. 3. The course of the surgical lesion presents anomalies imputable to the constitutional condition. This apparently simple classification will not be found easy of application in all cases; for, though in the immense majority of cases the injury can be established, the constitutional condition of the injured can be determined with less facility. In some cases, the relation existing between the injury and the diathesis is very distinct, of which the author cites two examples: A patient, formerly affected with malaria, enters the hospital for a simple fracture of the leg, and the same evening is attacked with violent and well-characterized fever. Another patient, syphilitic, sustains a slight bruise on the tibia, and, notwithstanding appropriate treatment, a specific exostosis appears some time after at the place of injury, which yields to treatment by mercury and iodide of potassium. In these cases the relation of cause and effect was manifest, because the subsequent phenomena bore the undoubted stamp of specificness, and the traumatism had only awakened the slumbering diathesis. Unfortunately, such cases are not the most common, and the physician feels embarrassed when unusual symptoms supervene in subjects whose history does not reveal any previous constitutional disorder.

But the influence of the diathesis will be most manifest: 1. When insignificant injuries, benign in themselves, are followed by severe symptoms; 2. When these symptoms resemble those which the constitutional disease would call forth if the traumatism had not occurred. In accordance with the foregoing classification, Verneuil divides the cases into three categories: As they behave like those not influenced by a diathesis; as the diathesis appears to reflect toward the injured part; or, lastly, as the injury provokes general manifestations of rheumatism. The cases of the first category, in which the traumatic lesion follows its usual course, are certainly the most numerous; provided the case receives proper attention and care, the wound, or traumatism, as a rule, pursues a normal and classic course. Generally, the influence of rheumatism on the traumatism is but slight, and the diathesis does not sensibly modify the reparative process; special arthritic symptoms have not yet been established for these cases, while the changes caused by the influence of syphilis or scrofula are well known. According to Verneuil, the reflection of the rheumatic diathesis on the injured part will be manifested by symptoms which are neither uncommon nor difficult to recognize and classify; such as serous effusions, œdema, pseudo-phlegmons, often accompanied by intense fixed or shooting pains, etc. The influence of traumatism in arousing long latent articular symptoms is more apparent, and can be demonstrated. It is difficult, for instance, to diagnosticate local articular symptoms, which sometimes, accompanied by violent chills and an intense fever, strongly resemble those of pyæmia. In two cases, the patients presented all the symptoms of purulent infection, and the most unfavorable prognosis was made; to the author's astonishment, they recovered, and it was then ascertained that they had had rheumatism. The author believes that, in the occasionally reported cases of recovery from pyæmia, these were merely simple symptoms of the rheumatic diathesis, called forth by the traumatism. He also believes that arthritism constitutes a serious predisposition to the development of traumatic erysipelas. This is one of the complications which he fears most in the operated or wounded who also have the uric diathesis, or have had previous well-marked attacks of acute articular rheumatism. The conclusions at which he arrives are: 1. That the traumatism can awaken the dormant rheumatic diathesis, or it can cause the extension of the rheumatic symptoms to organs which were not affected before. Furthermore, it can provoke the primary and premature appearance of rheumatism in subjects not previously so affected, but only predisposed. 2. That the most varied injuries possess this exciting tendency (fractures, contusions, slight or severe superficial ulcerations). 3. That the diathesis, provoked by this accidental influence, manifests itself in various ways, such as articular inflammation, cutaneous eruptions, disseminated neuralgic pains, pericarditis, cystitis, pulmonary congestion, etc. E. F.

Miscellany.

Appointments, Honors, etc.—Dr. Salvatore Caro has been elected president of the Obstetric section of the New York Academy of Medicine, and Dr. H. E. Crampton secretary. Dr. Calvin S. May has been appointed medical superintendent of the new insane asylum at Danvers, Mass., and Dr. Walter Channing assistant. Dr. J. P. Brown, first assistant physician at the Concord (N. H.) Insane Asylum, has been appointed superintendent at Taunton, in place of Dr. Godding, who resigned to succeed Dr. Nichols in the District of Columbia Asylum. Dr. J. F. Ensor has resigned the superintendency of the Insane Asylum of South Carolina, and is succeeded by Dr. Peter E. Griffin. Dr. John H. Callendar has been reëlected superintendent of the Tennessee State Asylum for the Insane at Nashville.

Dr. Alfred Hudson has been appointed one of the physicians to the Queen, in Ireland, in place of the late Dr. Stokes. Mr. Callender, of London, Prof. Arlt, of Vienna, and Prof. Reverdin, of Geneva, have been elected corresponding members of the Société de Chirurgie de Paris. The chair of Surgery in Würzburg, after having been refused by Profs. Volkmann, of Halle, Czerny, of Heidelberg, and Socin, of Basel, has been accepted by Prof. Bergmann, of Dorpat.

Dr. Sayre's Missionary Work abroad.—At a meeting of the Clinical Society of London, held January 25th, Mr. Berkeley Hill exhibited twelve patients with various degrees of angular and lateral curvature of the spine, who had been under treatment during the preceding six months by Sayre's plaster jackets. Mr. Hill summed up the benefits of the method, which were, briefly, arrest of pain, ability of the patient to walk about with comfort, restored control of the lower extremities, the healing of abscesses, and permanent improvement in the shape of the spine. He believed the plan was more rapid and less irksome than any other. Mr. Lucas reported twelve cases also, which had proved satisfactory. Mr. Golding Bird said he had used the method in eighteen cases, with complete relief in all.

Metallo-Therapy.—Prof. Charcot is lecturing in Paris on the results of his experiments with metals in the treatment of disease, after the method of M. Burq. The method consists in finding a metal which has some mysterious affinity for the patient, or to which there is a certain sensitiveness, as shown by its application to the skin. Then there follows a series of peculiar phenomena, beginning with anæsthesia. The right metal having been decided on, the system contemplates its administration in some form internally at the same time that it is applied externally. The patients on whom the method has been tried seem to have been mostly hysterical women, and it is natural to suppose the phenomena to be rather mental than physical.

The Last Illness of the King of Italy.—A correspondent of the *Lancet* states that the proximate cause of King Victor Emanuel's death was asphyxia, due to complete arrest, from red hepatization, of the function of the right lung, the function of the left having been impaired by the same disease in 1869. The patient having the malarial cachexia, there was a copious sudaminous eruption. The inhalation of oxygen was practised at the close, to mitigate the extreme suffering. The chief medical attendant of the king was Dr. Bruno. Venesection was resorted to early in the attack, but it seems questionable whether it did good or harm.

Strychnia in Bronchitis.—In a letter to the *Philadelphia Medical Times* of January 19th, Dr. Fothergill dwells at some length on the great value of strychnia as an expectorant in bronchitis. By its action on the respiratory centre, it proves useful when increase of respiratory power is needed for the expulsion of mucus gathered in the air-tubes. He gives it either alone or in combination with the ordinary cough-mixtures. On the same principle it has proved useful in chronic bronchitis, with emphysema, and in the dyspnœa of advanced Bright's disease.

Belladonna in Collapse.—Dr. Reinhard Weber, in the *Philadelphia Medical Times*, recommends the use of small doses of belladonna as more efficient in cases of collapse than camphor, musk, alcohol, and other stimulants usually prescribed to restore the failing action of the heart. Dr. Weber claims to have been the first to recommend the use of belladonna for this purpose. He gives a physiological theory of its action, and supports his arguments by reports of several cases.

Women in the University of London.—An unusually large meeting of the University of London was held January 15th, to consider the new supplemental charter providing for the admission of women to degrees in all the faculties. Great efforts were made on both sides, and the question was warmly debated. The result was a vote of 242 in favor of the charter, and 132 against it. The University has thus determined to ask the Government for powers to grant the same degrees to women as it now grants to men.

Human Temperature in the Tropics.—We learn from the *Medical Times and Gazette* that Surgeon-Major Johnston has made an extensive series of observations in India, on the subject of the normal temperature of the body in the tropics, and has found that, contrary to the general opinion, it is rather lower than the average temperature in the North. In one series of observations he found the mean axillary temperature to be 97.63°, and in another series 97.74°.

Lectures at the Paris Morgue.—Prof. Brouardel delivered the first of the new course of demonstrative lectures to the students at the Morgue. The number of students admitted on each occasion is limited to thirty. The object is to give instruction in the art of making a medico-legal autopsy, and drawing up a clear and correct report of it. The students are required to take notes as the autopsy is conducted before them, and to deliver a report at the next demonstration.

Threatened Strike of Doctors.—There has been some trouble between the public and the medical practitioners in Havre, France, in consequence of which the latter have united, and issued a circular to their patients, threatening a general strike unless their terms are complied with. From $2 to $4 for night and urgent visits is the moderate sum demanded.

Journalistic Notes.—The month of January brought us two new journals from Michigan—the *Detroit Lancet*, a monthly journal of eighty-two pages, edited by Drs. H. A. Cleland and Leartus Connor; and the *Michigan Medical News*, a semi-monthly journal of twelve pages, edited by Dr. J. J. Mulheron. Both promise well.

The New Maternity Hospital.—The appointments to the new Maternity Hospital, Blackwell's Island, are the following: Consulting Surgeons, Drs. Isaac E. Taylor and Fordyce Barker; Attending Surgeons, Drs. T. Gaillard Thomas, W. R. Gillette, W. T. Lusk, and M. A. Pallen.

A Physician's Black-Book.—The physicians of Antwerp have established a black-book, in which the names of delinquent patients are entered, and by reference to which each practitioner is able to ascertain his probable chances of obtaining remuneration for his services.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from January 14, 1878, *to February* 18, 1878.

WATERS, W. E., Captain and Assistant Surgeon.—Assigned to duty as Post Surgeon at San Antonio, Texas. S. O. 17, Department of Texas, January 23, 1878.

CALDWELL, D. G., Captain and Assistant Surgeon.—Relieved from duty in Department of Texas, to proceed to New York City, and report, on arrival, by letter to the Surgeon-General. S. O. 9, A. G. O., January 10, 1878.

PAULDING, H. O., First Lieutenant and Assistant Surgeon.—Leave of absence extended for three months. S. O. 19, A. G. O., January 26, 1878.

TURRILL, H. S., First Lieutenant and Assistant Surgeon.—Relieved from duty as Post Surgeon at San Antonio, Texas. S. O. 17, C. S., Department of Texas.

SPENCER, WM. G., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post Surgeon at Fort Townsend, W. T. S. O. 4, Department of the Columbia, January 7, 1878.

Obituary.

WILLIAM STOKES, M. D., D. C. L., F. R. S., etc., died in his native city of Dublin, January 7th. Dr. Stokes was born in 1804. His medical education was obtained in Edinburgh, where he graduated in 1825. Even as a student his remarkable abilities attracted attention. He entered on the practice of his profession in 1826, in Dublin, and became the colleague of Dr. Graves. He soon became popular as a lecturer and writer, and began early to contribute to the literature of medicine. His work on "Diseases of the Chest," that on "The Heart and Aorta," and his lectures on Fevers, are enough, alone, to establish his fame, and are widely known and read in this country. Dr. Stokes was one of the founders of the Pathological Society of Dublin, and was ever active in promoting the best interests of the profession. For many years he enjoyed a large and lucrative practice, and at the same time carried on his clinical instruction with great zeal and success. His intellect was of the highest order, and his name will occupy a prominent place in the annals of medicine.

DR. EDMUND RANDOLPH PEASLEE.

We cannot render a more appropriate tribute to the memory of the distinguished man whose loss has made so great a blank in the profession, than by giving a portion of the proceedings of the New York Academy of Medicine, at the meeting held February 7th, regretting that space does not permit of giving them entire, including Dr. Austin Flint's appropriate and impressive address.

By the kindness of Dr. Fordyce Barker we are permitted to make the following extract from his eloquent biographical tribute to the memory of his late colleague. Dr. Barker said:

In attempting the duty which the Council of the Academy of Medicine has allotted to me on the present occasion, a nervous anxiety oppresses me from the fear of inadequate and unsatisfactory performance. But, as his oldest acquaintance and friend in the profession of this city, I am encouraged by the feeling that I am trying to do just what our departed brother would have wished me to do. It is but a few weeks since, that Peaslee and myself were appointed a committee to report resolutions appropriate to the death of one of our fellows, who had been a successor to both of us in a chair of one of our medical colleges. As we were returning home from the meeting of the Academy, Peaslee said to me, referring to some remarks of mine before reading the resolutions which we had prepared, "I hope that you will live to do for me what you have done for Budd to-night." He added with a quiet humor, which those who knew him intimately will recognize as characteristic, "but I am in no hurry for it."

Edmund Randolph Peaslee, the son of James and Abigail (Chase) Peaslee, was born at Newton, N. H., January 22, 1814. He graduated at Dartmouth College in 1836. Professor E. D. Sanborn, in some "Personal Recollections" published in the college periodical (*The Dartmouth*), says: "When I came to Hanover to reside, in the autumn of 1835, I found Edmund R. Peaslee a member of the senior class in Dartmouth College. He was then a tall, slender, graceful young man, modest and reserved in social life, but manly and independent in action. His relative rank and influence among students then, were as marked and positive as they were afterward in professional life. His life-long friend, Samuel C. Bartlett, now President of the College, was his classmate. They were class-leaders in scholarship. They moved on so evenly through the entire college course, that no one presumed to give the precedence to one over the other. Dr. Peaslee was then a very strongly-marked character. His pure morals, his superior endowments, and his thorough mastery of every college study, commanded the sincere respect both of students and teachers. For one year after graduation he taught in Lebanon Academy, and made a new school at once popular. At the beginning of the college year in 1837 he returned to the college as tutor, where he remained two years. In the lecture-room he was always master of the situation. Good order and thorough instruction characterized his whole career as tutor. During his last year as a teacher, President Bartlett was his colleague. Here, similar pursuits and congenial tastes ripened their friendship into brotherly love, so that the survivor could say, 'Outside of my family circle I had not a dearer friend on earth.' "

Dr. Peaslee studied medicine with Dr. Noah Worcester and Dr. Dixi Crosby, of Hanover, and Dr. Jonathan Knight, of New Haven, and graduated as M. D. at the Yale College Medical School in 1840. During the following year he began the practice of his profession at Hanover, N. H., and also began to lecture on Anatomy and Physiology at Dartmouth College. He became a professor of these two branches in 1842, and continued to hold this chair until 1870. He became Professor of Anatomy and Surgery in Bowdoin College, Maine, in 1845, and was Professor of these two branches of education from this time until 1857, when he gave up anatomy, but continued to act as Professor of Surgery until 1860.

Dr. Peaslee was one of the first lecturers in the medical schools of the United States to make use of the microscope in teaching histology, physiology, and pathology.

[In 1851, solely through Dr. Barker's influence, he was induced to accept the appointment of Professor of Physiology and Pathology in the New York Medical College, which he retained until his removal to this city in 1858, when he succeeded Dr. Barker in the chair of Obstetrics and Diseases of Women in the same school, and held the position for three years.]

He was elected Professor of Gynæcology in Dartmouth College in 1872, and in Bellevue Hospital Medical College in 1874, both of which positions he occupied at the time of his death.

At different periods of his life he occupied the following honorable positions: President of the State Medical Society of New Hampshire, of the New York Pathological Society, of the New York County Medical Society, the New York Obstetrical Society, the New York Academy of Medicine, and the American Gynæcological Society. He was surgeon to the New York State Woman's Hospital at the time of his death. He was also a corresponding member of the Obstetrical Society of Berlin, and Honorary Fellow of the London Obstetrical Society and of the Louisville Obstetrical Society. In 1859 his Alma Mater conferred on him the honorary degree of LL. D.

His contributions to medical literature, which he began to make early in his professional life, were always of a high order of merit. His crowning work was that on "Ovarian Tumors," published by D. Appleton & Co. in 1872, and on that alone his fame might safely rest.

He was actively engaged in his professional practice until January 15th, when the first symptoms of his last illness appeared. The symptoms of pneumonia appeared two days later, and he died at noon on Monday, January 21st, the day preceding his sixty-fourth birthday.

He was attended in his last illness by Dr. J. E. Janvrin, and seen several times in consultation by Dr. Austin Flint.

Dr. Barker then offered the following resolutions :

Resolved, That by the death of our late fellow and ex-president the Academy of Medicine has lost one of its most distinguished and useful members, who was ever zealous for its interest, usefulness, and reputation; who, by his great success as a teacher of various departments in several medical colleges, has done much for the education of a large class of medical practitioners in all parts of the country, now working in the interests of humanity; who, by his important papers, either read before the Academy or published in different medical journals, and by his learned and able works, has added much to the science of medicine, and greatly improved its practice in many important departments, and has left an imperishable name, greatly to the honor and reputation of this Academy and of the profession of this city and of this country, and who, by his personal character, won our warm esteem and high respect.

Resolved, That these Resolutions be entered on the minutes of the Academy, and be sent to the medical journals of this city for publication, and that an engrossed copy be sent to his bereaved family.

FORDYCE BARKER,
JAMES L. BANKS, } *Committee*
AUSTIN FLINT,

Dr. T. Gaillard Thomas, in moving the adoption of the resolutions, spoke as follows:

The biographical sketch which has been so eloquently and appropriately given by the gentleman who has preceded me, has been compiled with such completeness of knowledge and with such fullness of feeling, that little is left for me to add in that strain. I shall therefore limit my remarks to some of the personal recollections excited by a long and intimate association with Dr. Peaslee.

When a profession is stricken by the calamity of losing one whose career shed lustre upon it, and who leaves a life-record worthy of imitation, the most useful lessons may be learned from recalling those attributes which endeared the departed to his associates, and those intellectual qualifications which gave dignity and success to his life. The character of Dr. Peaslee was so simple, so unaffected, and so sincere, that no difficulty will occur in fixing upon its ruling features—no difference of opinion will exist, among those who knew him well, as to its salient points.

I well remember when, over 20 years ago, I first met the man in memory of whom we are gathered together to-night, and well do I recall the first impression which he made upon me. I was especially struck by his calm, dispassionate, self-sustained nature. In every thought, in every act, he showed the quietude and calmness of a judicial mind, a well-poised and thoroughly-cultivated intellect. Do you not all, Fellows of the Academy, recall him thus wherever you met with him whether at the bedside, carefully weighing the value of symptoms, and cautiously applying every art of the skillful diagnostician, or bearing his part in debate in one or other of those medical societies to which he was so faithful even to the end of his life; or yet again in the social circle, when the character of some associate or the merit of some enterprise was under discussion? And do you not agree with me, that if one word were to be used as characterizing the positions which he assumed, that one word would be "Justice"? He seemed to have verified most perfectly the *dictum* of the Hebrew sage, "In quietness and in confidence shall be your strength."

The next most prominent feature of his character was hi utter and entire truthfulness and sincerity. There was something about him which impressed this fact upon all who came in contact with him. Even strangers would feel, when conversing with him, that every word he spoke came from a conviction of its truth, every expression direct from a pure and loyal heart. Here, where Peaslee lived and labored, but two classes of men could have dared to impugn either his truthfulness or sincerity: one class, that which was ignorant of his character; the other, that which was reckless of its own.

And now, sir, I will allude to the last mental feature of this good and true man, which most prominently presented itself. We read in history that, on one occasion, a test was presented to the flying hordes from one of Israel's battle-fields, to ascertain the tribe to which the individual belonged. This test was the word "Shibboleth." It seems to me that, in our day and our profession, a "Shibboleth" consisting of something more than a word is presented to every man as he advances into the "sere and yellow leaf" in medicine. The test is, the ability to recognize and adopt innovations and improvements in our art—the willingness to accept and encourage younger men who are the standard-bearers of progress. Need I say, in this assemblage, how gloriously Peaslee came forth from this trial? Do you not all know how ever-ready he was to adopt, after careful examination, every improvement, and how glad to encourage the young man who originated it? Right well did he once describe his own tendency, when, in an address in this city, he quoted the lines, "Be not the first by whom the new is tried; be not the first by whom the old is thrown aside!" He was the first to weigh and estimate innovations, and to adopt them if they proved veritable improvements. No one can bear evidence to this attribute more appropriately than myself. Not only was Peaslee identified with one department of medicine—gynæcology; to one small field of this department—ovariotomy—he had especially devoted himself. Upon his rare success in ovariotomy had depended his past reputation; upon it depended his fame in the future. Up to fifteen years ago, in New York, he stood alone, an arbiter in this department of surgery. At that time younger men arose and competed with him. And a beautiful sight was it to behold his magnanimous forbearance, his generous deportment, under the circumstances. Quite well do I remember when, for my first ovariotomy, I asked his assistance with a good deal of doubt, and quite as well do I recall how this doubt was dispelled by his kindly acceptance of my invitation, as the mist is dispelled by the morning sun. Not only did his mature counsel guide me then, as I have since on many occasions seen it do myself and others; after the operation he kindly criticised my methods, and generously predicted better things for me in the future.

But, sir, I am admonished to conclude my remarks by the knowledge that others would speak to the same theme. Let me, in conclusion, remind you, Fellows of the Academy, that, though the death of such a man always falls as a calamity upon the community in which he has lived, in the case of Dr. Peaslee there is much to mitigate sorrow and soften regret. Here no youthful aspirant has been cut untimely off with his destiny unfulfilled, his harvest unreaped. A master in medicine has gone to his rest, who has fought the good fight and made society his debtor.

What of success could the world accord to one of reasonable ambition, which was not won by him? He goes forth from among us loaded with all the honors which an appreciative profession could heap upon him; he leaves to those nearest and dearest to him the well-earned fruits of a life of successful labor; he bequeaths to the world discoveries in the healing art which will live long after he has turned to dust, and to the young men who are to succeed him, the eloquent record of a well-spent life.

THE death of CLAUDE BERNARD, the celebrated physiologist, is announced. A notice of his life and valuable labors will be given later.

DR. PIERRE BERTHIER, Physician-in-chief to the Lunatic Asylum at Bicêtre, died on December 20, 1877.

WE are obliged to postpone to the next issue obituary notices of Drs. James Blundell, Fleetwood Churchill, and Lundsford P. Yandell.

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Original Communications.

ART. I.—*An Experimental Inquiry into the Muscular Element of the First Sound of the Heart.*[1] By J. W. S. ARNOLD, A. M., M. D., Professor of Physiology and Histology in the Medical Department of the University of the City of New York.

THE varied views entertained, at the present day, upon the cause of the first sound of the heart, are well-known to both the practitioner and working physiologist. Many observers agree in considering the sound as of a complex character, probably the result of the closure of the auriculo-ventricular valves, the impulse against the chest-walls, and the muscular contraction of the ventricles. A certain number of high authorities, however, are by no means disposed to include the muscular element, and the purport of the present paper is to try and determine what evidence can be collected to settle this question. The muscular element of the first sound is acknowledged by Laennec, Turner, D'Espine, Piedagnel, C. J. B. Williams, the Dublin, London, and Philadelphia Committees, Dalton, Flint (senior and junior), and many more. But Michael Foster[2] and Guttman[3] are representatives of those who do not believe in any muscular element, and with these differences of opinion we have to contend.

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[1] Read before the County Medical Society, January 28, 1878.

[2] "Text-Book of Physiology."

[3] Virchow's "Archiv.," xlvi.

In a series of carefully-conducted experiments by Dr. C. J. B. Williams,[1] many conditions were investigated which relate to the question under consideration. He maintains "that the first sound is produced by the muscular contraction itself," the clearness of which is increased by the quantity of blood in the heart, "affording an object around which the fibres effectually tighten, while the auricular valve, by preventing the reflux of the blood, increases its resistance, and thus adds to the tension necessary for its expulsion." He was first led to the adoption of this opinion by the experiments of Erman and Wollaston upon the existence of a sound accompanying every rapid muscular contraction. This opinion he afterward put to the test of experiment, the results of which I give in his own words: "Experiment first, observation eighth; I pushed my finger through the mitral orifice into the left ventricle and pressed on the right so as to prevent the influx of blood into either ventricle; the ventricles continued to contract strongly (especially when irritated by the nail of the finger on the left), and the first sound was still distinct, but not so clear as when the ventricles contracted on their blood. Observation ninth. The same phenomena were observed when both the arteries were severed from the heart." He also found in other observations that the first sound was louder over the surface of the ventricles than over the origin of the large arteries, which is in direct opposition to the opinion of those who believe that this is produced by the rush of blood along the great arteries. That the first sound is not dependent upon the closing of the auriculo-ventricular valves, he also ascertained from observations, in which the closure of these valves was partially or completely prevented, and yet the first sound was still heard. Besides, this sound continues during the whole of the ventricular systole, while the shutting of the valves must take place and be completed at the commencement of the systole. That the collision of the particles fluid in the ventricles does not produce this sound he was co vinced from observations, in which it continued although there was no blood in the ventricles.

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[1] *Medical Gazette*, September, 1835. Todd's "Cyclopædia Anat. ar Phys.," article "Heart."

"The London committee,[1] in their report given in at the meeting of the British Scientific Association for 1836, have adduced some additional experiments in favor of the opinion that the first sound of the heart depends upon muscular contraction. It appeared to them that the sound produced by the contraction of the abdominal muscles as heard through a flexible tube resembles the systolic sound."

These experiments are of much value and interest, and will be referred to again in connection with others.

The conclusions of Dr. Halford[2] are about the opposite to those just cited; he having exposed the heart in a large dog, under chloroform, artificial respiration being kept up, found that, by suddenly compressing the superior and inferior venæ cavæ and pulmonary veins, he could abolish completely both the first and second sounds of the heart, although the organ "contracted vigorously."

The question naturally arises, under what conditions does a muscle produce a sound? Does ventricular systole represent these conditions?

The sound of muscular contraction was investigated by Wollaston as early as 1809, and since that time has received a large share of attention from Helmholtz, Haughton, Natanson, and others. There can be no doubt, at the present day, that a contracting muscle gives forth a sound, and it becomes therefore of interest to determine the mechanism of its production. The physiology of muscular contraction has reached a very interesting stage, inasmuch as by the application of delicately-constructed apparatus the complex laws relating to it are gradually becoming known; in short, the large collection of facts in this particular department are of exceeding interest.

It may not be out of place, therefore, to review rapidly some of the properties of muscle.

Of the two varieties of muscle, voluntary and involuntary, the heart in its histology resembles closely the former, although it is possessed of certain special structural details peculiarly its own. For our purpose, therefore, the heart may be considered as essentially a voluntary, striated muscle, and the physiology or general properties of the striated muscle will be taken as the basis of experiment and comparison.

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[1] Todd, *loc. cit.*, p. 617, note.

[2] Carpenter's "Phys.," American ed., p. 305.

Upon the application of a stimulus to a muscle, contraction ensues, and the muscular tissue itself may receive the stimulus, or the effect can take place through the nerve.

As the contraction following the stimulus is exceedingly rapid sometimes, the eye is unable to distinguish the exact form of motion, hence it becomes necessary to adopt some mechanical contrivance to record the peculiarities of the muscular shortening.

The instrument used for this purpose is called the myograph, and consists essentially of a delicate lever which writes or marks upon a surface moving at a uniform and known rate, the muscular motions being transmitted directly to the lever, or through some intermediate mechanism. In this manner the precise differences of muscular contractions can be most accurately recorded, and the time for each individual act, or part of an act, measured.

When the nerve distributed to a muscle is excited by a single electrical irritation, the muscle responds by a single motion, called the muscular shock. In man this shock lasts for from eight to ten one-hundredths of one second for the muscle to accomplish its shortening, and then a longer time for it to resume its original length. If now a new excitation be received by the nerve, another muscular shock will result.

"But, if the excitations of the nerve succeed each other at such short intervals that the muscle has not time to accomplish the first shock before it receives a second, a special phenomenon is produced; these movements are confounded and absorbed into a state of permanent contraction, which lasts as long as the excitations go on succeeding each other at short intervals."[1] [Within certain limits, as the nerve and muscle both become fatigued after a time.] "This shock is only the elementary act in the function of the muscle; it plays therein, after a fashion, the same part as the sonorous vibration plays in the complex phenomenon which constitutes sound. When the will ordains a muscular contraction, the nerve excites in the muscle a series of shocks which follow one another so closely that the first has not time to end before a second begins, so that these elementary movements combine together and coalesce to produce the contraction."

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[1] Marey, "Animal Mechanism," p. 45.

The action of successive induced currents on the nerve of a frog causes these movements in the muscle supplied by the nerve, and Edward Weber has given the name tetanus to this kind of muscular contraction.

Helmholtz declares that the vibrations, into which the muscle is thrown, produce a sound, and that the tone or pitch depends upon the number of vibrations performed by the muscle, and Prof. Marey has obtained tracings with his myograph of the vibrations of muscles "under the influence of tetanus-producing shocks."

Wollaston, to whom reference has been made, obtained 36 D, as the highest tone produced by muscular contraction, and Haughton a variation from the C 32 to D 36 per second.

Helmholtz obtained 36 vibrations per second for his masticating muscles, but obtained somewhat deeper tones for the feebler muscles of the face.

In order to investigate the muscular sound, it is simply necessary to stop up the ears with wet paper or wax, and in a perfectly silent apartment contract the muscles of mastication strongly, when a low, rumbling sound, like that of a distant wagon passing over the pavement, will be experienced. The same effect can be produced by contracting voluntarily the tensor tympani, a power possessed by some individuals, of which I myself am an example.

In his investigations on this subject, Helmholtz[1] placed an induction apparatus, whose spring vibrated 130 times a second (consequently giving just so many opening induction shocks), in another room, with closed doors, so that the sound of the spring could not be heard by him, and, putting the electrodes on his masseter muscle, heard, on obtaining contraction, the note or tone (i. e., pitch), of the spring; and every time his assistant changed the vibrations of the spring, by toying with the adjusting screw, the change in the muscular tone was evident. When the current was too weak to excite contraction no sound was heard. The note, though less strong, was heard upon applying the stethoscope to the similarly tetanized arm-muscles of another person.

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[1] Reichert's "Archiv," 1864.

To remove the possibility of the electrical current assailing the ear, or causing the muscles to vibrate as a stretched wire, Helmholtz made the current traverse the median nerve in the upper part of the arm, having weakened the current so far that when applied to the muscle itself it produced no contraction. When, however, the electrodes delivered this current to the nerve, the note of muscular contraction was heard, and when removed a little to one side there was neither sound nor muscular contraction. Later observations by this distinguished scientist place the muscular tone as about 18 to 20 vibrations per second instead of 36 to 40; the audible tone is therefore the octave above the primary note in the muscular sound.[1]

It has been found that, with excitations of equal intensity, the contractions are stronger in proportion to the frequency of the stimulus, and the muscles of the jaw give a sound, the acuteness of which varies with the energy of contraction. Differences of a fifth in the pitch of the sound may thus be produced.

If the excitations be repeated more than a certain number of times per second, varying with the animal and state of the muscle, the several shocks fuse completely into one another, and tetanus is produced, in which no vibration is perceptible by instrumental tracings.

Marey has shown that a voluntarily contracted muscle gives no apparent secondary vibration that can be determined by the myograph, as, owing to the extreme elasticity of the muscle, a coalescence takes place; he states—"they are extinguished, just as the jerks of the piston of a fire-engine disappear in the elasticity of its reservoir of air."[2] An obstacle placed in the way of a contracting muscle, as a pin limiting the movements of the myographic lever, increases the duratio of the shock or contraction. In fact, "muscles, to acquir their maximum of action, should in the first place be slightly stretched."[1]

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[1] "Verhandlungen d. Naturhist. Med. Vereins."

[2] "Animal Mechanism," p. 47.

Many muscles are in a state of constant tension during life, as is observed particularly in facial paralysis; the sound muscles being relieved of their opponents, resume their unstretched condition, and at the same time, by drawing upon, distort these of the opposite side.

During the period of rest the galvanometer shows a current of electricity.in a muscle separated from the body and placed in its circuit, the current flowing from the natural or artificial *longitudinal* section to a natural or artificial transverse section. This current disappears, or is at least greatly reduced in intensity, while the muscle is in a state of contraction, giving rise to the condition known as negative variation. The electrical changes resulting from the contraction of a muscle will produce sufficient irritation in a nerve laid upon the muscle to generate a contraction in the second muscle to which the nerve is attached; this phenomenon is styled secondary contraction.

The foregoing brief reference to some properties of muscle are of value in this connection, as they form a partial basis upon which we can examine most accurately the cardiac movements. The illustrious experimenter Prof. Marey has published a series of most carefully conducted observations upon the muscular movements of the heart in different animals, even in man himself, a detailed account of which will be found in the *Journal de l'Anatomie* for 1866, and "Travaux du Laboratoire de M. Marey," 1875. By most ingenious and carefully constructed apparatus he was able to obtain tracings that are of exceeding value, and in this manner he investigated the cardiac movements in man, the horse, frog, eel, crab, tortoise, etc. Marey considers the ventricular systole as essentially the same in all animals, and that it is precisely like the shock of an ordinary muscle, the only difference being that of duration. The contraction of the leg-muscle of the tortoise is of as great duration as that of the frog's heart. His experiments with the rheoscopic frog, applied to the frog's heart, led him to consider the systole a simple muscular shock only; he states—"and I saw that every cardiac systole induced in the foot a unique shock, very short, about fifteen times shorter than the systole of the heart which produced it." The conclusions arrived at from these experiments certainly militate against a muscular sound during ventricular systole; but I will again refer to them in connection with others which I myself have made, and examine whether or no the facts warrant such deductions.

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[1] "Mouvement," etc., p. 361.

Seeing now the conditions which require careful investigation and consideration, it becomes more easy to follow out the plan pursued in my own studies upon the muscular element of the first sound of the heart.

The course adopted has been the following, viz.:

1. To record the form and duration of the heart's contraction.

2. To compare the form and duration of the heart's contraction with that of the gastrocnemius, or other voluntary muscle.

3. To auscultate the heart under varied conditions.

4. To examine the electrical condition during its systole.

The form and duration of the cardiac and other muscular contractions have been obtained by taking tracings upon a Secretan's cylinder with Foucault's regulator, the motion being transmitted by Marey's improved tambours. A chronograph, recording hundredths of one second, marked the time upon the smoked paper of the revolving cylinder, which thus received the tracings of the muscular movements and measure of time simultaneously.

The chronograph consists of a tuning-fork, kept in vibration by an electro-magnet, in the circuit of which is another electro-magnet of small size, which causes a spring to vibrate in unison with the fork, and writes, by means of a quill-point attached to the spring, one hundred double vibrations in one second.

With the instruments described, and many others not mentioned, observations were made upon man, the horse, dog, frog, and turtle.

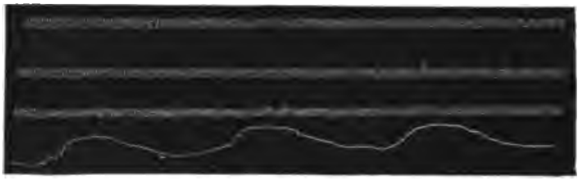
In experimenting upon man, the apex beat was recorded by Burdon-Sanderson's cardiograph and Marey's pince myographique. The tracings from the horse's heart were made in the manner adopted by Marey and Chauveau, by passing a double sound, armed with "*ampoules*," or air-bags, into the right auricle and ventricle, through the external jugular vein, on tho right side. An instrument of similar construction and appropriate size was used in some experiments upon the dog; while in others the contractions ot the ventricles were recorded by a tambour-system connected with the apex of the heart by a steel-hook passed into its muscular substance.

EXPERIMENT 1. *Medium-sized Dog.*—Medulla broken up, bellows fitted to tracheæ, and artificial respiration kept up. The chest-walls were now cut away and the heart exposed. Detaching the pericardium, a hook was fastened in the apex of the heart and attached by a fine wire to the initial tambour of the cardiograph. The heart's action during the whole operation was regular and vigorous. Stopping the artificial respiration for ten seconds, a tracing is made of the ventricular contraction. It was found necessary to discontinue the artificial respiration during the time of taking the tracing, as the lungs, when inflated, interfered somewhat with the wire from the hook to the first tambour; but as the time required was only ten seconds, and as vigorous applications of the bellows were resorted to just before stopping the air supply, it is certain that the heart movements were about normal.

The recording cylinder, with a circumference of 42 centimetres, covered with smoked paper, made one revolution in ten seconds, and the time was measured by the diapason, giving 100 double vibrations per second. Under these conditions, tracing No. 1 was made. Respiration resumed for a few minutes; femoral artery and aorta completely divided, and Tracing No. 2 obtained; mechanism same as in Tracing No. 1. The heart was now allowed to cease beating, and a stimulation from 2 quart Smee cells applied at the right auriculo-ventricular groove, which gave Tracing No. 3.

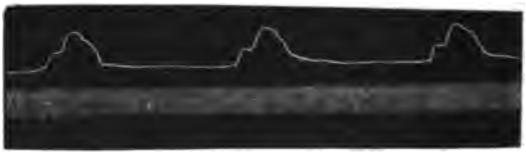
EXPERIMENT 2. *Medium-sized Dog.*—Poisoned with woorara. Artificial respiration employed; chest-walls removed and heart connected with recording instrument, as before, except that cylinder now revolved once in one second, and tracing No. 4 made. Heart drained of blood by dividing venæ cavæ and aorta; whence Tracing No. 5.

FIG. 1.



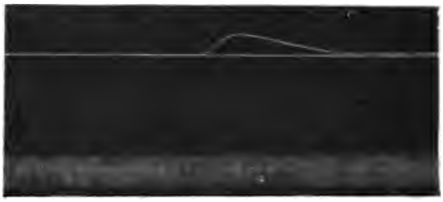
HOOK IN DOG'S HEART. Normal systole.

FIG. 2.



DOG'S HEART. Cavities empty.

FIG. 3.



HEART OF DOG. Stimulated after coming to rest.

EXPERIMENT 3. *Young small Dog.*—Medulla broken up; artificial respiration; sciatic nerve exposed, also gastrocnemius muscle; tendo Achillis cut, and a hook passed through it, which was then made fast to the myograph by a thin wire. All the branches given off from sciatic were next divided, except those supplying the gastrocnemius. Contractions excited by two 1 quart Smee cells, the electrodes applied to the nerve. The make and break accomplished with Du Bois-Reymond's key. Recording cylinder revolving once in ten seconds. Tracing No. 6.

EXPERIMENT 4.—This was made at the American Veterinary College in Fifty-fourth Street, the facilities of the institution being kindly tendered me by Prof. A. Liautard. A horse in rather feeble condition was made use of. Just before the experiment three balls of ammonium carbonate were administered, as the apex beat of the heart was felt to be quite weak. Prof. Liautard now exposed the right jugular vein, and, after casting a ligature around the distal portion of the vessel as it lay bare in the wound, *digital* compression was employed about four inches below, and an incision having been made into the vessel, between the ligature and constriction, the double catheter of Chauveau and Marey, armed with two ampoules, was easily lodged in the right auricle and ventricle. Connecting the double catheter with two inscribing lever tambours, a tracing was obtained of the auricular and ventricular systoles in their relative duration, form, and force. Recording cylinder making one revolution in ten seconds. Tracing No. 7 resulted.

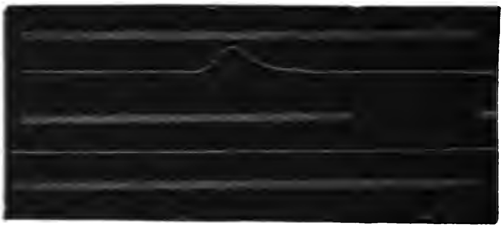
There were present during this experiment Profs. Weisse, Stern, and Witthaus, together with the house-staff of the Veterinary Hospital attached to the College. The management of the chronographic battery and many other details were intrusted to the care of my accomplished assistant, Dr. Miller, Prof. Witthaus also assisting.

Experiment 5. *Medium-sized Dog.*—Etherized, sciatic nerve and gastrocnemius exposed and arranged as in Experiment 3. Tracing No. 8 completed.

Experiment 6. *Very large Dog.*—Etherized, right jugular vein exposed, and double catheter (made especially for this sized animal) was introduced into the right cavities of the heart. The first series of records were made during the influence of the ether (marked number one on the traced sheet); another set show the differences upon fully recovering from the anæsthetic (marked number two). This furnished tracing No. 9.

Experiment 7.—A frog's gastrocnemius muscle was employed. The regular nerve-muscle preparation made, and adjusted in the moist chamber of the myograph. A second frog was now decapitated and pithed, the heart exposed, pericardium removed, and the sciatic nerve of nerve-muscle preparation laid carefully upon the pulsating organ. With each systole the gastrocnemius contracted, as if excited by an opening induction shock. This is seen in part No. I., Tracing No. 10. The pulsating heart was then replaced by five cells of a Trouvé battery, and the contractions resulting from making and breaking the current with a Du Bois-Reymond key form part No. II. of Tracing 10.

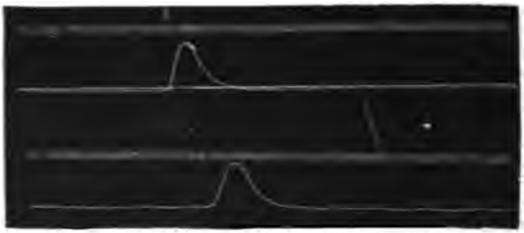
FIG. 4.



GASTROCNEMIUS OF FROG. Nerve irritated by heart's systole.

EXPERIMENT 8.—Frog's gastrocnemius muscle, with nerve attached, in moist chamber, as before; nerve stimulated by two cells of Trouvé's battery. Current upward. A=make and B=break, in Tracings No. 11 and 12.

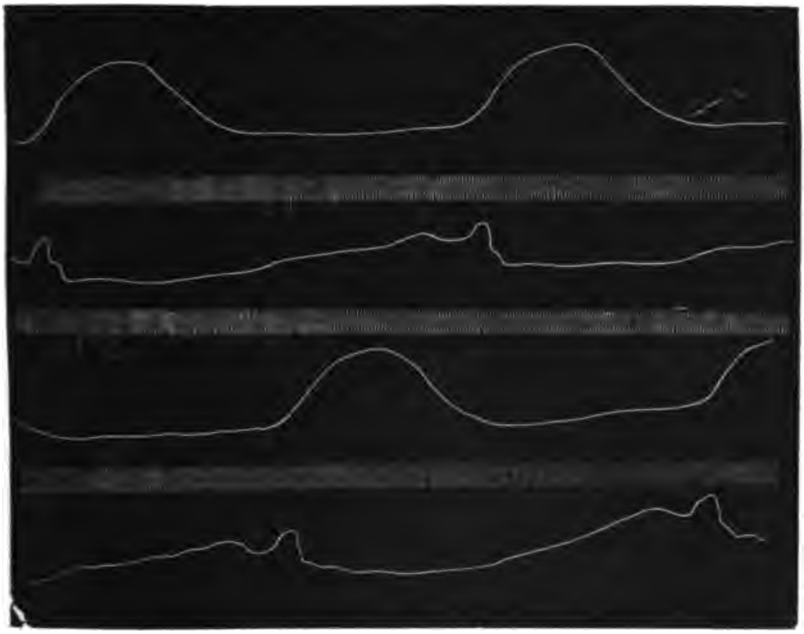
FIG. 5.



GASTROCNEMIUS OF FROG. Opening shock.

EXPERIMENT 9.—Made at American Veterinary College. Present, Profs. Dalton, Sayre, and Gouley, also Dr. Luis Sayre. Horse in quite good condition. Right jugular vein exposed, as before, by Prof. Liautard, and double catheter introduced, as in Experiment 4. A number of tracings were obtained on this occasion of right auricle and ventricle together. In addition, the apex-beat was recorded simultaneously with the ventricular movement, by applying Sanderson's cardiograph over the apex impulse as felt by the hand. Tracings 13, 14, 15, 16, 17, and 18.

FIG. 6.



AURICLE AND VENTRICLE OF HORSE.

EXPERIMENT 10. *Medium-sized Dog.*—Brought under influence of woorara. [The heart-sounds were carefully listened to with single and binaural stethoscopes before administering the drug.] Heart exposed, and maintains its action well under artificial respiration. Both forms of stethoscope applied directly to substance of heart, and first and second sounds distinctly heard. The heart, still contracting vigorously, was now rapidly cut out, and the stethoscopes immediately applied; the first sound still continues, the second, of course, had entirely disappeared.

Introducing through the auricles a sharp knife, the auriculo-ventricular valves and chordæ tendineæ were completely destroyed (as an after-examination proved); the stethoscopes being again applied to the still contracting organ, a distinct sound was heard by both myself and Dr. Maurice N. Miller.

It is here worthy of note that the heart of a dog, poisoned with woorara, will continue to beat for a number of minutes after removal from the body, thus giving ample time for a careful auscultatory examination.

EXPERIMENT 11.—A small dog was brought under the influence of woorara. A tube placed in the trachea, as in preceeding experiment, artificial respiration being steadily maintained. The heart was exposed, and examined with single and binaural stethoscope by my friend and colleague, Prof. A. L. Loomis, M. D., who pronounced the first and second sounds plainly audible. The heart being rapidly cut out, the pericardium removed, gave to Dr. Loomis what he termed the "softer element of the first sound." I now rapidly cut through both auricles with a probe-pointed, curved bistoury, and severed the chordæ tendineæ; still, upon applying the stethoscope to the somewhat enfeebled muscle, Dr. Loomis was able to hear the muscular sound with distinctness.

In the observations just detailed, the time of each muscular act was carefully taken in hundredths of one second, and the duration of the complete contraction noted, which included the time occupied by the muscle to return to its state of equilibrium after accomplishing its shortening. The duration of the simple shortening has also been determined and compared with that occupied by the entire act of contraction and relaxation. In order to make the necessary countings, the line described by the lever during rest was used as an abscissa, and perpendiculars erected upon these formed the ordinates required.

As the tuning-fork vibrations were inscribed just above the muscular tracings, it became only necessary to count the vibrations between the ordinates which were erected at the beginning, ending, etc., of the muscular curves. In many instances a number of readings were taken, and the mean adopted, as being likely to prove more accurate.

After obtaining the results in fractions of one second, it seems quite important to observe the differences in time between the ventricular systole and a muscular shock, which, as we have already seen, is not supposed to be capable of giving out a tone or sound. The average time for the total contraction of the gastrocnemius of the dog is 0.21665 sec., the contraction itself occupying 0.1279 sec., and the relaxation 0.08875 sec.

The dog's heart in like manner has a duration of 0.29925 sec., for the entire contraction, while the contraction minus the relaxation is 0.14566 sec., the relaxation taking 0.15359 sec. The difference in time between the contraction of the dog's heart and gastrocnemius is, for the entire act, 0.0822 sec.; for the contraction alone, 0.01776 sec.; and for relaxation, 0.06484 sec. It is very evident that the time occupied by the heart is longer than that of the leg-muscle, the entire difference being 0.082 sec. The number of beats of the dog's heart are quite frequent, being 100 to 120 per minute, according to Milne Edwards.

In the case of the horse, we find that the heart-beats are much slower, only 36 to 40 in repose.

During the experiments performed at the American Veterinary, already cited, the pulsations were about 42 per minute. The entire ventricular contractions in the horse are of considerable duration, varying from 0.89 sec. to 0.95 sec., the simple contractions reaching 0.38 sec. in one case, and 0.3575 sec. in the other.

Due regard should also be paid to the time required for the systole of the auricle, 0.10 sec. A glance at Table II. shows that the longest time occupied by the contraction of the leg-muscle of the dog is 0.24 sec., which is shorter than that of the heart, except in Tracing No. 2, Table I., where 0.2133 sec. was obtained in the case of the heart, after being emptied of its blood completely. It is sufficiently evident that the contraction of the empty heart would resemble that of an unstretched muscle, and the short duration of the systole in this single exception can surely be accounted for by the absence of the normal resistance—i. e., the blood.

The time occupied by the systole of the human heart cannot be measured directly; but, by an ingenious method, Donders[1] has arrived at results which are undoubtedly very accurate. His plan consisted in the measurement of the intervals between the first and second sounds, and the relation between this and the whole cardiac period, and shows a duration of 0.309 sec. to 0.327 sec. Thurston,[2] calculating the systole from sphygmographic tracings, obtains results by this entirely different method, which agree in a most surprising manner with those of Donders. From the investigations of Garrod, it would seem that the cardiac systole is not of constant duration, but varies as the cube root of the pulse rate. Thurston's results confirm the views of Garrod, although other observers do not accept his statement as correct. There can be no doubt, however, that violent exercise, which increases the cardiac pulsations, must modify to a considerable extent the duration of the systole.

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[1] "Nederlandsch Arch. v. Geneesen Naturkunde," ii., 139, 1865.

[2] "Journal of Anatomy and Physiology," vol. x., part iii., 1876, p. 494, *et seq.*

The duration of a muscular shock *in man* has been stated as from 0.08 sec. to 0.10 sec. for the contraction without relaxation; allowing the entire time of contraction and relaxation as 0.30 sec., which would represent the maximum, we still have left 0.027 sec. for the heart over and above that of the ordinary red muscle.

The great duration of the cardiac systole in the horse, with its accompanying intensity of sound on auscultation, should be borne in mind. A comparison of the muscular curve of contraction of the ventricle in the horse and dog, with the curve as seen in the muscles of the leg, points quite decidedly, by its flattened top, to the continued contraction necessary to produce a muscular sound. The fact that the fibres of the heart are arranged in layers, which must be thrown into a state of extreme tension, lasting for more than one-third of one second in the case of the horse, is also additional evidence.

The experiments of Dr. Williams, and the committees of London, Dublin, and Philadelphia, though not of recent date, still point to a muscular element accompanying ventricular systole. The muscular sound heard by Ludwig and Dogiel in a dog's heart emptied of blood, with the great vessels tied to prevent the entrance of fluid, and pulsating in a glass vessel containing defibrinated blood, which allowed of a long and careful series of auscultations, adds but another link to the chain. It is true that Ludwig did not destroy the possibility of valvular tension, as the columnæ carneæ were left intact; but in my own observations this error was carefully avoided, and still the sound was heard, not only by myself but by an expert auscultator, Prof. Loomis. The electrical conditions as evinced by the rheoscopic frog are not, at the present day, considered a certain test. This conclusion agrees exactly with the results of Tracing No. 10, part No. 1. No definite conclusions have as yet been reached through galvanometric experiments, although some new facts are likely to be added by the use of Lippman's capillary electrometer, to which reference will be made at some future time.

From the facts herein shown, may not the conclusion be drawn that there *does* exist a muscular element in the first sound of the heart?

In conclusion, I must acknowledge my indebtedness to Prof. Liautard for the interest taken in my experiments, and the facilities he has so kindly placed at my command; and also to my most skillful and ever zealous assistant, Dr. Maurice N. Miller, who has aided me throughout the tedious and complicated experimental work detailed in this paper, and who has kindly made the illustrations used this evening.

TABLE I.

TRACING No. 1.—*Heart of dog:*		
Total contraction, including relaxation........	0.4366″	Filled with blood.
Simple contraction, excluding relaxation.....	0.2030″	
TRACING No. 2.—*Heart of dog:*		
Total contraction........................	0.2133″	Empty.
Simple contraction........................	0.1020″	
TRACING No. 3.—*Heart of dog:*		
Total contraction........................	0.5150″	Stimulated after coming to rest.
Simple contraction........................	0.1600″	
TRACING No. 4.—*Heart of dog:*		
Total contraction........................	0.2500″	Heart filled with blood.
Simple contraction........................	———	
TRACING No. 5.—*Heart of dog:*		
Total contraction........................	0.2500″	Heart empty.
Simple contraction........................	———	
TRACING No. 7.—*Heart of horse:*		
Total contraction........................	0.9525″	Right ventricle.
Simple contraction........................	0.3575″	
TRACING No. 9.—*Heart of dog; sound with ampoule in right ventricle:*		
Total contraction........................	0.2066″	Under ether.
Simple contraction........................	0.1200″	
Total contraction........................	0.2233″	No anæsthetic.
Simple contraction........................	0.1433″	
TRACING No. 13.—*Heart of horse:*		
Right ventricle.—Total contraction..........	0.8900″	
" " Simple contraction........	0.3800″	
" auricle.—Total contraction..........	0.1000″	
" " Simple contraction........	0.0700″	

TABLE II.

Tracing No. 6.—*Gastrocnemius of dog; nerve irritated:*		
Total contraction	0.1933″	
Simple contraction	0.1533″	
Tracing No. 8.—*Gastrocnemius of dog; nerve irritated:*		
Total contraction	0.2400″ make	0.2400″ break.
Simple contraction	0.0950″ make	0.1100″ break.
Tracing No. 10.—*Gastrocnemius of frog; nerve irritated by contractions of heart of frog:*		
Total contraction	0.3000″	
Simple contraction	0.0966″	
Tracing No. 11.—*Gastrocnemius of frog; nerve irritated by 2 Trouvé's cells:*		
Total contraction	0.4000″	Muscle fatigued, from prolonged irritation.
Simple contraction	0.0700″	
Tracing No. 12.—*Gastrocnemius of frog; nerve irritated, as in No. 11:*		
Total contraction	0.2633″	
Simple contraction	0.0633″	

Art. II.—*Forcible dilatation of the Cervix Uteri for the relief of Dysmenorrhœa and Flexions, with cases.* By Robert Watts, M. D., Physician to the Roosevelt Hospital, New York.

The two conditions of the uterus which are the most frequent causes of dysmenorrhœa are, undoubtedly, contraction of the cervical canal or its orifices, and flexions. To find a reliable method of treatment for the relief of these conditions has long been the aim of gynæcologists; and to attain this end various plans of treatment have been suggested, and divers operations proposed. These may all be classed under the two general methods of Dilatation and Incision.

The disadvantages of the operations by *incision*, as practiced by Simpson, Sims, and their followers are:

1. The risk of severe immediate hæmorrhage, and

2. Permanent alterations in the shape and relations of the different parts of the uterus, evils which Prof. Peaslee claim

are avoided in the operation advocated by himself, and which he terms "Superficial Trachelotomy.[1]

These operations, however, relieve only the stenosis of the cervical canal or its orifices, and the consequent dysmenorrhœa, but do not rectify flexions of the uterus.

When the dysmenorrhœa is due to either retroflexion or anteflexion which cannot be rectified by pessaries, the operation of dividing the posterior or anterior lip (Sims or Thomas) has been resorted to with benefit; the permanency of the relief afforded depending, however, upon the continuance of the deformity in the cervix produced by the operation, the flexion itself remaining unchanged.

The dangers and evils resulting from the treatment by cutting operations are avoided in that by dilatation; but as usually practiced, with graduated sounds, this is a slow and tedious method, and often of no more than temporary benefit. For as soon as the treatment is suspended the stenosis is very apt to recur.

Flexions, moreover, are not permanently rectified by this plan.

Within a few years the treatment by *forcible* and *rapid dilatation* has been recommended, and in 1873 Dr. John Ball, of Brooklyn, N. Y., in a paper read before the Medical Society of King's County, described an operation as performed by him, which consists in forcibly dilating the cervical canal and then introducing a stem-pessary of large size.

Dr. Ball claims that his "operation is not only applicable to all cases of constriction of the cervix uteri, but its *crowning glory* consists in the complete and radical cure of *flexion*, for which there had previously been no really satisfactory treatment."

My experience with the operation does not lead me to indorse fully the latter part of the above statement; but I have found that flexions have been so far rectified by it that they no longer gave rise to uncomfortable symptoms, while the preëxisting dysmenorrhœa has been entirly cured.

The advantages of this method of operating are:

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[1] "Incision and Discission of the Cervix Uteri." E. R. Peaslee, M. D., New York, 1876.

1. The absence of risk of hæmorrhage: it never, in my experience, having exceeded three or four drachms.

2. That there is no consequent deformity of the cervix, such as is caused by the division of its walls.

3. That it does, in a great measure, rectify flexions, and,

4. That the good results of the operation are permanent.

That the operation is free from danger cannot be claimed, for all operations upon the uterus are attended with more or less risk. Even the simple introduction of a sound, or the insertion of a sponge-tent, will sometimes give rise to a cellulitis or a peritonitis which may even prove fatal. I have, indeed, been unfortunate enough to have had one case of death after the operation (Case X.); but this can hardly be considered an argument against the procedure, for the same accident might be urged against nearly every operation now commonly performed, and with proper care and precautions the one in question is quite as safe as any of those recommended under similar conditions. Indeed, in the case just mentioned, the unfortunate result seems to have been due rather to the patient's own carelessness than to the treatment.

My experience with the operation has been such that I am induced to describe it in full, and to give the history of some cases which have been under observation for a sufficient length of time to judge of the result.

The time chosen for operating should be about one week after the close of a menstrual period.

The patient should always be anæsthetized, as pain and shock are thereby avoided. The operation is performed in the following manner, as recommended by Dr. Ball:

The patient, being under the influence of ether, is placed upon the back in the "lithotomy"-position, and a valvular speculum introduced. The uterus is drawn down by means of a strong hook, and graduated sounds are introduced in rapid succession, until the dilator, which equals in size a No. 10 catheter, can be inserted. The canal is then forcibly dilated from one-half to three-quarters of an inch, and a stem-pessary, which corresponds in size with a No. 16 urethral bougie, is introduced, and secured in position by means o tapes passing through the eye in the shank of the instrument and secured in front and behind to a bandage encircling the patient's waist. The patient is kept moderately under the influence of opium, and should be scrupulously confined to the bed for a week or ten days. The pessary is then to be removed, and, after four days more, the patient is allowed to leave her bed and move about.

Case I.—S. H., single, aged twenty-one, admitted to Roosevelt Hospital, February 9, 1874. Menstruation was normal and painless until nine months ago, when she caught cold during a period, and the flow ceased. Ever since then has had severe pain in left iliac region, with violent dysmenorrhœa. Has been confined to bed almost continuously for nine months, being unable to stand or walk, on account of the pain. Has had various local and general treatment without benefit.

Examination shows the uterus tender to the touch; the fundus flexed on the cervix, backward and to the right. Os quite small, and cervix conical. Sound is introduced with difficulty, owing to the tortuous direction of the canal. Uterus measures three inches.

Gradual dilatation with sounds was practiced, but with very little benefit, and on June 3, 1874, the patient being under ether, *forcible dilatation* was performed—but, owing to some defect in the instrument, the desired amount of dilatation was not obtained.

On July 23d the operation was repeated, the canal being dilated to three-quarters of an inch in all directions. No pessary was introduced in this case.

No unpleasant symptoms followed the operation. Pain was entirely relieved, and the patient was able to be up and walking about for the first time in nearly a year.

October 2d.—Uterus in normal position; two and a half inches in depth, and the cervical canal nearly straight, allowing Kammerer's dilator No. 3 to enter with ease.

This patient afterward married, became pregnant, and miscarried at three months after a fall. She has since been delivered of two living children, one in August, 1876, and the other in July, 1877, and is now perfectly well.

Case II.—J. S., single, aged twenty-four, admitted to

Roosevelt Hospital, May 15, 1874. Has always had dysmenorrhœa, which is increasing in severity, and there is a constant pain in the right iliac region.

Examination.—Os small and round. Cervix somewhat swollen. Sound enters three inches. Fundus sharply anteflexed on cervix.

June 12, 1874.—Under ether dilated cervical canal to three-quarters of an inch in all directions, and introduced a stem-pessary. Patient was kept in bed for a week, at the end of which the pessary was removed. No unpleasant symptoms followed the operation.

August 4th.—Dysmenorrhœa has been entirely relieved, as well as the pain in the right iliac region.

Examination.—Uterus somewhat anteverted, but not flexed. Sound enters two and a half inches. This patient has since married and borne two living children.

Case III.—M. W., single, aged twenty. Admitted to Roosevelt Hospital, April 24, 1874. Has had dysmenorrhœa for three years, and is steadily growing worse, with constant pain in left side and back.

Examination.—Cervix conical. Os small and round. Fundus anteflexed, but can easily be lifted up by the finger, the uterus being very flaccid. Decided constriction at internal os. Forcible dilatation was practiced on July 15th, and again on August 21st, and a stem-pessary introduced each time.

July 1, 1875.—Patient still has dysmenorrhœa at times. Some periods are almost painless.

Case IV.—S. R., married, aged twenty-six; admitted to Roosevelt Hospital, April 11, 1874. Complains of severe dysmenorrhœa.

Examination.—Uterus anteflexed. Constriction at internal os. Endometritis.

Local applications and general treatment were employed to relieve the endometritis, and on July 22d performed forcible dilatation and introduced stem-pessary.

August 22d.—Has menstruated with much less pain; but, uterus being still anteflexed, repeated the dilatation and introduced the stem.

December 11th.—Has no dysmenorrhœa. Uterus in normal position. No constriction at internal os. Uterus measures three inches.

October, 1876.—Patient reports that the dysmenorrhœa has never returned since the operation, and that she is now pregnant.

Case V.—Mrs. D., aged thirty-one. Consulted me September 24, 1874.

Has been married eight years, but never been pregnant. Since she was nineteen, has suffered with dysmenorrhœa, caused, she thinks, by sitting on the cold ground during a period. Ten days before menstruation begins she is seized with a pain in the region of the left ovary, which is so severe as to confine her to bed, and necessitates the free use of anodynes. Pain is partially relieved after the flowing begins. This continues about three days without being profuse.

Examination.—Cervix enlarged and os pointing backward. By conjoined manipulation fundus is found anteflexed as well as anteverted. Sound, with a sharp curve, can be introduced two and a half inches.

Os is small and cervix granular. Some cervical endometritis.

October 14th.—Patient has been treated by gradual dilatation and applications to cervical mucous membrane, but without benefit; the last menstruation having been quite as severe as usual.

Dr. Eager saw the patient with me, and confirmed the diagnosis of anteflexion. With his assistance performed forcible dilatation, and introduced a stem-pessary.

November 3d.—Has just ceased menstruating with much less pain, the attack having lasted only five days. Uterus in normal position. Returns to her home in the country.

January 11, 1875.—Her physician writes, "I saw her last month. She claimed to have some pain, but not enough to confine her to bed. Would not consent to be cupped, for she was so much better."

I have heard nothing from this patient since.

Case VI.—M. R., single, aged twenty-four. Admitted to Roosevelt Hospital, February 1, 1875.

Has always suffered with dysmenorrhœa, which is now so severe as to confine her to bed for several days.

Examination.—Uterus in normal position. Cervix conical. Os small and round. Marked constriction at os internum, so that only a fine probe can be introduced. Uterus measures two and one-half inches.

February [illegible].—Forcible dilatation was performed, and a stem-pessary introduced.

No unpleasant symptoms followed, and the dysmenorrhœa was entirely relieved.

November 1, 1875.—Her employer informs me that the patient has been perfectly well since the operation, and never complains of pain during menstruation.

Case VII.—M. W., aged thirty, married several years, but never pregnant. Admitted to Roosevelt Hospital, April 14, 1875.

Has had dysmenorrhœa for five years, with pain in the left inguinal region, extending around to the back and down the thigh and leg. This has been growing worse for the last two years.

Examination.—Uterus anteflexed, and measures three inches.

April 18, 1875.—Forcible dilatation and stem-pessary.

September, 1875.—Patient has been menstruating during the summer without pain, and says she is now quite well.

Case VIII.—J. D., single, aged twenty-seven. Admitted to Roosevelt Hospital, April 1, 1875.

Dysmenorrhœa for two years. At each menstrual period has violent attacks of vomiting and pain in the lower part of the abdomen, also in the back, and shooting down the thighs. The vomiting comes on before the flowing, and together with the pain keeps her in bed from ten to fifteen days.

Examination.—Uterus sharply anteflexed.

May 20th.—Forcibly dilated cervix to three-quarters of an inch, and inserted stem.

November 23d.—Is entirely relieved from the attacks of vomiting and pain, and has menstruated the last three times without being obliged to keep her bed.

Uterus slightly anteflexed, but sound enters easily two and a half inches.

Case IX.—M. J., single, aged twenty-eight. Entered Roosevelt Hospital, May 10, 1875.

Was well until a year and a half ago, when she began to suffer with pain in the back, headache, and dysmenorrhœa. Menstruation is regular, but very painful, and for this she seeks relief.

Examination.—Uterus is flexed antero-laterally, and measures two inches and three-quarters.

May 20th.—Forcibly dilated cervix and introduced stem-pessary.

July 30, 1876.—Reports herself entirely free from any menstrual difficulty.

Case X.—G. McG., single, aged twenty-three years. Entered Roosevelt Hospital, May 20, 1875. Menstruation has always been attended with pain in the lumbar region, extending around into the abdomen and shooting down the thighs. Together with this there are headache and nausea, vertigo and vomiting. These symptoms have gradually grown worse, and during the last three periods she was obliged to keep her bed for a week each time, seriously interfering with her occupation as a nurse.

Examination.—Uterus sharply flexed, forward and to the right.

May 22d.—Forcibly dilated cervix and introduced a stem-pessary.

25th.—The pessary is found lying in the vagina, the vaginal portion of the shank being so short that the retaining tapes have drawn it out of the uterus.

31st.—Introduced the stem-pessary again, having first dilated the cervix without any force being required.

June 1st.—Contrary to positive instructions, patient got up on the cold floor, in her bare feet, and made her bed, immediately after which she was seized with a violent chill, and developed an acute peritonitis, of which she died on June 3d.

The following extracts are from the notes of Dr. F. Delafield, who made the autopsy:

"Intestines glued together by small amount of recent lymph. No great injection of the vessels. Pelvic cavity filled with sero-purulent fluid. Uterus straight as regards its own axis, but the fundus turned toward the right side. No injection of the peritonæum in the pelvic cavity, or of that covering the uterus. The fimbriated extremity of each Fallopian tube intensely congested. The ovaries, especially the left, covered with recent lymph. The ovaries themselves slightly œdematous, and in the left one a small cyst as large as a white bean. The uterus, after being laid open, was found entirely healthy. No evidence of metritis or endometritis. The mucous membrane slightly ruptured at internal os. No pus in the vessels of the uterus. The Fallopian tubes entirely healthy up to their fimbriated extremities, which are intensely injected, but no pus is found at any point in the tubes. The cervix uteri slightly lacerated in the posterior lip. Nothing found in the uterus, its serous covering, or the Fallopian tubes, to account for the peritonitis."

CASE XI.—J. C., single, aged nineteen years. Admitted to Roosevelt Hospital, November 17, 1875. Has had dysmenorrhœa for three years, for which she has been treated by gradual dilatation of the cervix with sounds, without permanent relief.

Examination.—Uterus anteflexed at junction of cervix with body, and there is constriction at the internal os. Uterus measures two and a half inches.

December 10th.—Forcibly dilated cervix and inserted stem-pessary. Patient has had no uncomfortable symptoms after the operation, and was discharged from the hospital on December 30th.

April, 1876.—Am informed by the physician who has had the patient under observation since she left the hospital, that she has had no return of the dysmenorrhœa, and that there is now but very slight anteflexion.

ART. III.—*The Physiological Anatomy of the Foot.* By LEWIS A. STIMSON, M. D.

THE great improvements made in the means of physiological research during the present century, the extent and richness of the fields of biological investigation which they have opened up, the complexity of the problems, and the absorbing interest of the developments, have turned the attention of pure physiologists and pathologists away from the questions of gross anatomy and physiology, and concentrated it upon histological and histo-chemical details. Even the anatomists have allowed considerations of the broader, more apparent relations of the parts of the body to one another to fall into comparative neglect, and have substituted the microscope for the scalpel.

But while the attention of professional observers has been withdrawn, the exigencies of practice have compelled surgeons and physicians to meet new questions in this field, and attempt new explanations of old ones. The introduction of electro-therapeutics alone has required, and has aided in establishing, the most exact knowledge of the distribution of the nerves, and of the functions of the muscles; and a similar exactness concerning the bones and articulations has been promoted by workers in the field of surgery.

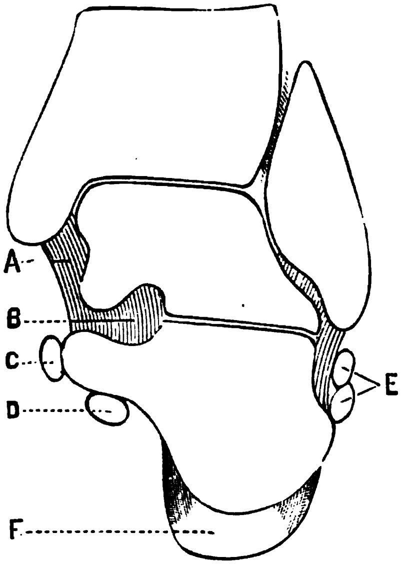
Nevertheless, there are still many questions unsettled, and the student of text-books and monographs is frequently called upon to harmonize or decide between conflicting statements and opinions. During the course of a special study of the diseases of the skeleton, I found it necessary to decide between the opinions held by different writers upon points concerning the physiology of the foot. No help could be obtained from the anatomists, for they consider the individual parts, without much reference to their reciprocal relations; the physiologists were silent or vague, and the means employed by special observers seemed open to many chances of error. These were either electricity or dissection, aided by experiments with artificial muscles. With the former there can be no certainty that the stimulus is applied to only one muscle at a time, and, although the latter seems perfectly safe, it is not entirely so. If the dissection is limited to laying bare a muscle or tendon, and making traction by it, the movements are masked by the integuments; if the dissection is carried further, important parts may be divided, and, in either case, the position of the limb must be constantly considered, and the effect of gravitation estimated. Investigation has been largely confined to the action of the muscles, while the relations of the bones, and the limitations of their movements upon one another, have not been fully brought out. This seemed, therefore, to be a fit subject for examination, and one likely to yield definite results. In accordance with this restricted plan, I shall not attempt a detailed description of all the parts of the foot, but shall limit it mainly to the reciprocal relations of the ligaments and bones, and to the mechanical principles underlying them.

The Tibio-tarsal Articulation.—This articulation consists of a deep mortice, formed by the two malleoli and the inferior articular surface of the tibia, into which the body of the astragalus is closely fitted. Motion within it is limited: (1) laterally, about an antero-posterior axis, by the square form of the mortice, and by the prolongation outward of the outer and lower part of the body of the astragalus, under the tip of the external malleolus; (2) about a vertical axis, by the anterior and posterior fasciculi of the external lateral ligament, and by the deep portion of the internal lateral ligament, and also within certain limits, after the removal of these checks, by the breadth of the lateral bony surfaces; (3) about a transverse axis, only after free flexion and extension, by contact of the astragalus and calcaneum with the anterior and posterior edges of the tibia.

(1.) The limitations of the first are absolute. There is no lateral motion about an antero-posterior axis within this joint, except to a very slight extent when the foot is forcibly extended. A glance at Fig. 1 is sufficient to show this. The flat top and square sides of the mortice filled accurately by the body of the astragalus are an absolute bar to motion in this direction, and, if a wire be driven into the neck of the astragalus and carried as high even as the knee, the tibia cannot be made to move in the slightest degree to either side of it, so long as the astragalus is kept firmly pressed up into the mortice. If this fact were less generally accepted than it is, it would be easy to show, in addition, that lateral motion at this point, unsupported by strong muscles, would seriously impair the stability of the body, and endanger the integrity of the bones.

Although a prolongation of the long axis of the tibia falls on the inner side of the calcaneum (Fig. 1), the inner border of the inner tuberosity, which forms the point of support of the heel, lies far within that line,[1] and this disposition, aided by

FIG. 1.



VERTICAL SECTION THROUGH THE TIPS OF THE MALLEOLI.—*A*, Internal lateral ligament; *B*, Interosseous ligament in the canalis tarsi; *C*, Tendon of flexor communis digitorum; *D*, Tendon of flexor longus pollicis; *E*, Tendons of peronei; *F*, Inner tuberosity of the calcaneum.

the flat surfaces of contact between the tibia and astragalus, prevents any angular lateral displacement of the parts by the weight of the body. This statement is supported by the circumstance that while a moderate force, applied to the inner side of the heel and directed outward at right angles to the axis of the tibia, is sufficient to tear off the tip of the internal malleolus and dislocate the astragalus downward, no amount of force applied downward through the tibia will produce the same effect, even after the foot has been everted as far as possible.

(2.) Motion about a vertical axis, passing through or near the external malleolus, is generally claimed by the anatomists. While the bony frame of the joint allows this motion to the extent of 15° to 20°, it is impossible to obtain more than 2° to 3° when the ligaments are in place, an amount too slight to have any significance. (Fig. 2.)

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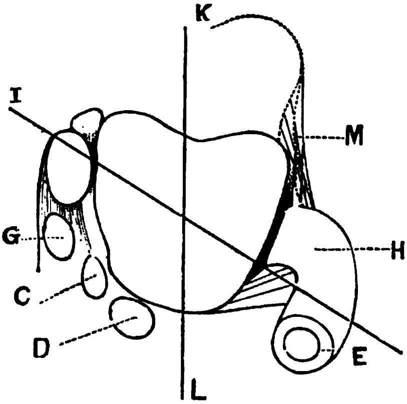
[1] Fig. 1 represents an oblique section carried through the tips of the two malleoli, and, as a consequence of this obliquity, the heel appears to lie outside the vertical line.

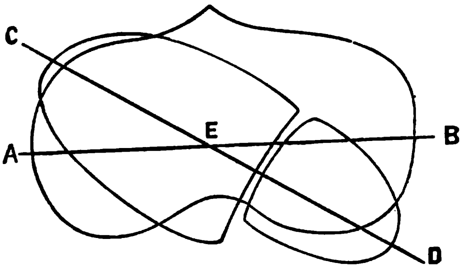
FIG. 2.



HORIZONTAL SECTION THROUGH THE MALLEOLI, JUST BELOW THE TOP OF THE ASTRAGALUS.—*C*, *D*, and *E*, as in Fig. 1; *G*, Tendon of tibialis posticus: *H*, External malleolus: *I E*, Axis of the articulation; *K L*, Median line of the foot; *M*, Anterior fasciculus of the external lateral ligment.

(3.) Flexion and extension can be made, through an arc of nearly 90°, about a transverse axis passing from the tip of the internal malleolus to a point one centimetre above and a little behind the tip of the external malleolus. The astragalus is held snugly in place by the deep portion of the internal lateral ligament and the posterior fasciculus of the external one, and, as an intermediary between the tibia and calcaneum, has functions analogous to those of a meniscus. Its axis of motion is determined by the flat sides of the mortice in which it is lodged and by these ligaments; it is at right angles with the long axis of the tibia, and faces outward from the antero-posterior line of the foot, making an angle of 30° with the axis of the knee-joint. (Fig. 3.) The result of this lack of parallelism between the axes of the knee and ankle is, that flexion of the leg upon the foot, when the latter is fixed, is accompanied by external rotation of the thigh, the knee being carried slightly outward, or by a general displacement of the body outward, bringing its centre of gravity more directly over the foot.

FIG. 3.



UPPER AND LOWER ARTICULAR SURFACES OF THE TIBIA.—*A B*, Axis of knee-joint; *C D*, Axis of ankle-joint; The angle *C E A* = 30°.

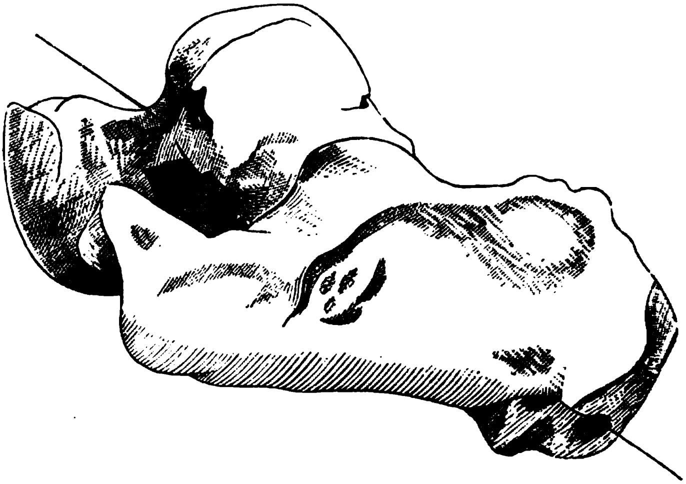
Extension is accomplished by all the muscles whose line of action, in whole or in part, lies behind this axis; flexion by those whose line of action is anterior to it. The former are the muscles of the posterior aspect of the leg, including the peroneus longus. The latter those of the anterior aspect. The action of each muscle will be considered in detail hereafter.

The dislocation of the astragalus is prevented: backward, by the posterior lip of the articular surface of the tibia; forward, by the external and internal ligaments.

The Calcaneo-astragaloid Articulation.—The calcaneum and astragalus are in contact by three articular surfaces—a posterior and two anterior, the latter being sometimes united upon the calcaneum. Those of the astragalus occupy its inferior surface, those of the calcaneum the anterior half of its upper surface. The posterior one on each bone is a section of the surface of a cylinder described with a radius of two and a-half centimetres about an horizontal axis passing through the central portion of the calcaneum in a direction midway between the longitudinal and transverse lines of the foot. That of the calcaneum is convex; that of the astragalus concave. The middle facet is small and flat, lying nearly in the plane of the surface of the cylinder just mentioned and a tangent to it at its highest point. The anterior one is also small; that of the astragalus is convex, and occupies the lower and outer portion of its head; that of the calcaneum is flat, occupies the inner third of the upper surface of the greater process, and looks upward, and slightly inward and backward. The two bones are united by the interosseous ligament, which, starting from the deep portion of the internal lateral ligament, fills the canalis tarsi, and expands externally into a long and broad band, passing from the roughened depression in front of the posterior articular facet of the calcaneum to the head of the astragalus, limiting the movement of the latter inward (*ab*duction of the toes). There are also two peripheral ligaments uniting these bones; one of them adjoins, and is parallel to, the middle fasciculus of the external lateral ligament; the other lies posteriorly, below and to the outer side of the tendon of the flexor longus pollicis.

The irregular forms of these bones, and the number and complexity of their articular facets have given rise to much diversity of opinion regarding their reciprocal movements. I am convinced, however, that, if we take into consideration only those limited movements which are possible within the bounds set by the ligaments, they can all be referred to an axis passing from a point upon the neck of the astragalus, just anterior

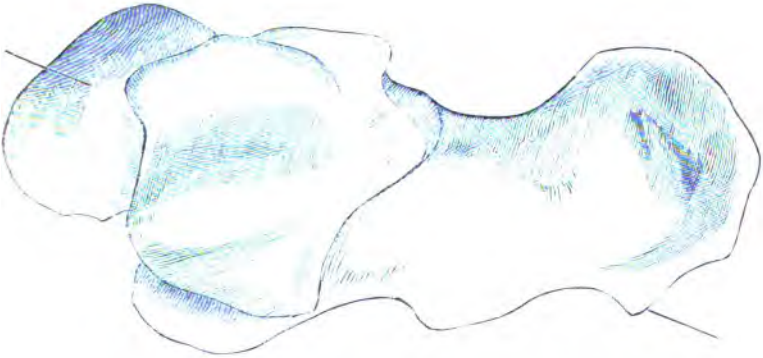
FIG. 4.



LATERAL VIEW OF THE AXIS OF THE CALCANEO-ASTRAGALOID ARTICULATION.

and a little external to the anterior inner angle of the superior articular surface of that bone backward, downward, and outward, to the immediate neighborhood of the outer tuberosity of the calcaneum. (Figs. 4 and 5.)

FIG. 5.



AXIS OF THE CALCANEO-ASTRAGALOID ARTICULATION.—Seen from above.

Figs. 6, 7, 8, and 9, represent sections of the foot made at right angles to this axis, for the purpose of demonstrating the directions in which the different portions move during rotation upon this axis. The first section, Fig. 6, passes through the upper edge of the head of the astragalus; the second, Fig. 7, is one centimetre behind the first; the third, Fig. 8, two centimetres behind the second; and the fourth, Fig. 9, passes through the outer tuberosity of the calcaneum. The point at which the axis traverses the section and a vertical line through it are represented in each figure. The directions in which the parts move and their freedom of motion are, of course, determined by their position with reference to this axis and line. It is evident from the figures that the anterior end of the calcaneum, Fig. 7, moves more freely than the posterior end, Fig. 9, and in the opposite direction. It must be borne in mind that the relations of the scaphoid to the axis and vertical line, as shown in Fig. 6, are not constant, since it has an additional centre of motion in the medio-tarsal articulation, to be hereafter described.

Movement of the astragalus and calcaneum upon each other and about this axis, within narrow limits, is easy; its

FIG. 6.

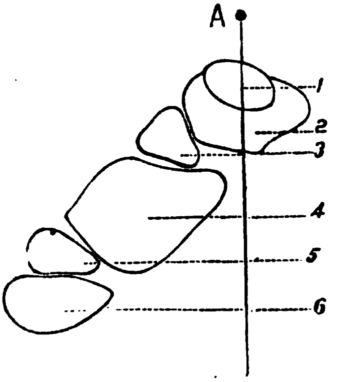


FIG. 7.

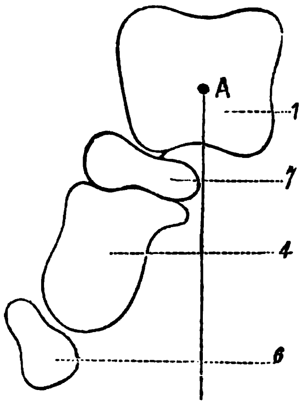


FIG. 8.

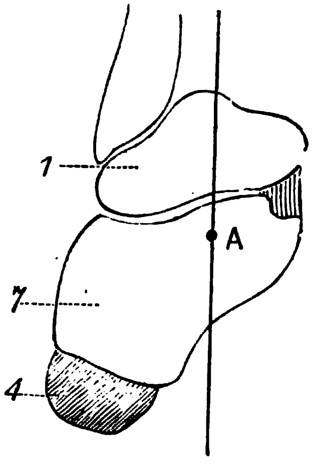
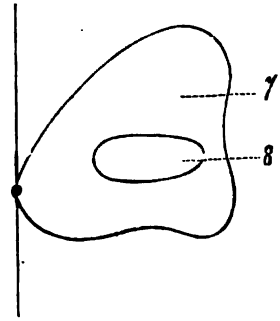


FIG. 9.



SECTIONS AT RIGHT ANGLES TO THE CALCANEO-ASTRAGALOID AXIS.—1, Astragalus; 2, Scaphoid; 3, Third cuneiform; 4, Cuboid; 5, Fourth Metatarsal; 6, Fifth Metatarsal; 7, Calcaneum; 8, Insertion of the Tendo Achillis.

further extension is prevented by the different ligaments, and by certain irregularities in the articular surfaces which tend to force the bones apart vertically, and increase the tension of the ligaments when these limits are passed.

Owing to the length of the calcaneum, its obliquity to this axis, and its intimate connection through the cuboid with the anterior part of the foot, and also in consequence of the position of the astragalus between the calcaneum and the origins of all the muscles of the leg, this axis is a most important one, and motion about it is the result of the contraction of nearly every one of the muscles.

The Medio-tarsal Articulation.—This is formed by two pair of bones, the astragalus and calcaneum on one side, the scaphoid and cuboid on the other. In this connection the two latter and the three cuneiform may be considered as a single bone, for, although they possess a certain amount of motion upon one another, it serves only to aid the anterior part of the foot to accommodate itself to irregularities of the ground, and by slight yielding to shock to avoid fracture. The calcaneum and the cuboid have each a concavo-convex articular surface, and the two, when placed together, allow a gliding motion about an antero-posterior axis passing through the articulation. This motion is kept within narrow limits by the strong calcaneo-cuboid ligaments which hold the bones firmly together. It is also possible to move the cuboid a variable, but always short, distance directly inward, thus exposing the outer portion of the articular surface of the calcaneum.

The articular surface of the astragalus is globular and is received into the concave articular surface of the scaphoid, supplemented by the strong inferior calcaneo-scaphoid ligament which connects the scaphoid and sustentaculum tali, is lined with a synovial membrane, and is in relation with the inner and lower portion of the head of the astragalus. As this part of the articulation is at some distance from the centre of motion, its movements are more free, and they may be further increased by the motion of the astragalus upon the calcaneum.

The ligaments binding together the bones of this joint are numerous and very strong. They are the four calcaneo-cuboid and the two calcaneo-scaphoid. Two of the former, the long and short calcaneo-cuboids, are of exceptional length, breadth, and thickness, and offer the greatest opposition to the longitudinal separation of the calcaneum, cuboid, and sec ond, third, and fourth metatarsal bones. Of the two latter the inferior calcaneo-scaphoid is exceptionally strong, and is further reënforced by the tendon of the tibialis posticus which is in relation with its under-surface. Extending from the lesser process of the calcaneum to the under-surface of the scaphoid, it opposes any increase in the distance between these bones (abduction of the toes), and, by supplying elastic support for the head of the astragalus, it prevents jarring and possible fracture, under conditions to be hereafter mentioned. The stretching of this ligament results in the sinking of the scaphoid, and the lengthening and abduction of the foot.

As the axis of this articulation is antero-posterior, and lies near the outer edge of the foot, movements about it will be produced by these muscles which raise or lower the inner border of the foot (inversion and eversion of the sole), and also, as a secondary effect, by those which adduct or abduct the toes. This inversion of the sole, as Dubrueil[1] has pointed out, relaxes the plantar calcaneo-cuboid ligaments somewhat, and allows the translation of the cuboid directly inward, as described above, to be carried further than when the foot is not inverted.

The only point in connection with the metatarsal bones which I shall here mention is the manner in which the base of the second metatarsal is received between the first and third cuneiform. Lateral displacement of the metatarsus upon the tarsus is thereby prevented, and the first metatarsal enabled to bear the strain exerted by the peroneus longus.

The Bones of the Foot as a Whole.—It is usually taught that the bones of the foot are arranged in a transverse and one (or two) longitudinal arches. By a glance at Fig. 10, which represents a vertical antero-posterior section passing through the long axis of the first metatarsal, it will be seen that a longitudinal arch, in the mathematical sense of the word, does not exist. On the contrary, the foot is built upon the principle of the truss, the apex of which is in the astragalus in the transverse axis of the tibio-tarsal articulation. One side is formed by the body of the astragalus and the posterior portion of the calcaneum, and is represented by a line drawn from the apex to the inner tuberosity of the calcaneum. The other side is formed by the head and neck of the astragalus, the scaphoid, the first and second cuneiform, and first metatarsal bones, and is represented by a line drawn through these bones to the head of the first metatarsal. The supports of the truss are the different calcaneo-cuboid ligaments (the longest of which extends to the metatarsal bones), the inferior calcaneo-scaphoid, and the tendons and bodies of different muscles of the sole and calf.

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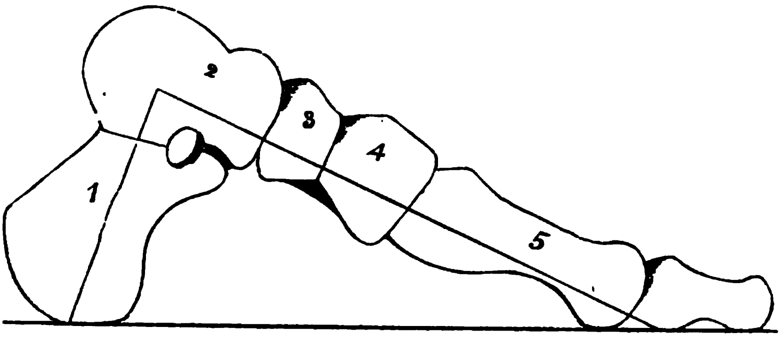
[1] *Bulletins de la Société de Chirurgie*, 1875, p. 34.

The two sides are not united by bone at the apex; the bearing surfaces of the astragalus, instead of being opposed to each other, as those of the keystone of an arch are, are at right angles to each other, so that pressure backward through the scaphoid is not met by any solid surface of bone belonging to the foot (Fig. 10).[1] It is met instead by the tibia and fibula and the various ligaments binding them and the astragalus and calcaneum together, by the tendons of the deep muscles of the calf, and by the comparatively great height of the calcaneo-cuboid articular surface (Fig. 11).

FIG. 10.



VERTICAL SECTION THROUGH THE FOOT.—1, Calcaneum; 2, Astragalus; 3, Scaphoid; 4, First cuneiform; 5, First Metarsal.

The base of the truss is formed of bones connected by the different calcaneo-cuboid ligaments, and the sides are stayed in addition by the calcaneo-scaphoid ligament and the tendons of the peronei and deep muscles of the calf.

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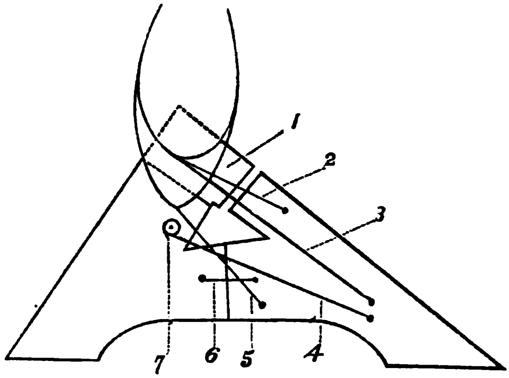
[1] The actual tendency of this pressure, as modified by the obliquity of the superior articular surfaces of the calcaneum, is to rotate the astragalus at first about the axis formed by its relations with the calcaneum, but this may be disregarded in this connection.

FIG. 11.



DIAGRAMMATIC RELATIONS OF THE ASTRAGALUS.—1, Astragalus; 2, Tibialis posticus; 3, Flexor communis digitorum; 4, Flexor longus pollicis; 5, Peronei; 6, Calcaneo-cuboid ligaments; 7, Sustentaculum tali.

Let us now see how this truss receives and supports the weight of the body. When the foot rests squarely on the ground, the weight of the body is received vertically upon the superior articular surface of the astragalus. In this position, as in any other of the joint, this weight acts in a line which passes through the transverse axis of the articulation, and it must be considered as concentrated in the latter. The vertical thickness of the astragalus does not enter into the problem; like the tibia, its function is simply to transmit the weight to the apex of the truss, which, as has been said, also lies in the transverse axis of the joint.

The mechanical effect of the weight thus received upon the apex is increased to a degree corresponding with the obliquity of the sides, in accordance with the mechanical principle involved in the arrangement of levers known as the "knee-joint." The greater the departure from the vertical line, the greater is the increase in the effect of the weight consequently, the smaller the angle at the apex the less the strain upon the truss exerted by a given weight. The press ure thus obtained is distributed between the two sides in a ratio determined by their comparative obliquity, the side which is more nearly vertical receiving the larger share; and this pressure is further divided at the base, according to the parallelogram of forces, into two forces, an horizontal and a vertical one, corresponding respectively to the sine and cosine of the angle of inclination. Of these two, the vertical force is neutralized by the reaction of the ground, and the horizontal one represents the rupturing strain along the base. According to the calculation contained in the following note, the strain exerted along the sole of the foot by a weight of 150 pounds, acting through the tibia upon a foot shaped like that represented in Fig. 10, is 41.56 pounds. As the height of the instep is diminished this proportion is increased.

This strain must be met by the tissues uniting the anterior and posterior portions of the foot, the chief of which are the calcaneo-cuboid ligaments; and as the calculation gives the value of the force exerted along a line extending between the points at which the heel and first metatarsal bone touch the ground, the strength of the ligaments necessary to overcome this rupturing force must be proportionally greater the nearer they are placed to the apex and the further from the base of the triangle, because the leverage with which they act is thereby diminished.

Here, then, is the mechanical principle of the foot and the measure of its strength. It is not an arch, but a truss, the strain upon which increases directly as the angle at the apex, and inversely as the distance from the apex to the connections at the base.[1]

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[1] The weight resting upon the apex and the pressure exerted thereby upon the two sides of the truss are represented by the sides of a triangle composed of a vertical line and two lines parallel to the sides of the truss. Thus, in the annexed figure, in which the triangle ABC corresponds to the triangle contained in Fig. 10, the weight upon A, the pressure upon AB, and that upon AC are represented respectively by the sides AD, AE, and DE of the triangle ADE, AD being a vertical line representing the direction and amount of the action exerted by the weight upon A, and DE being drawn parallel to AC. The angle ABC = 72°, ACB = 28°, and BAC = 80°, and the weight resting upon A = 150.

ED being parallel to AC, the angle EDA = angle DAC = 62°, because

The theory of a second longitudinal arch, one passing through the greater process of the calcaneum, cuboid, and fifth metatarsal, is also erroneous. The first two bones act as the base of the main truss, and the fifth metatarsal is a stay or buttress of the same, increasing the breadth of its support, and giving it greater stability.

The transverse arch does exist, not indeed composed of the three cuneiform bones, as usually described, but running more obliquely, in the line of the tendon of the peroneus longus, from the base of the first metatarsal to the peroneal groove in

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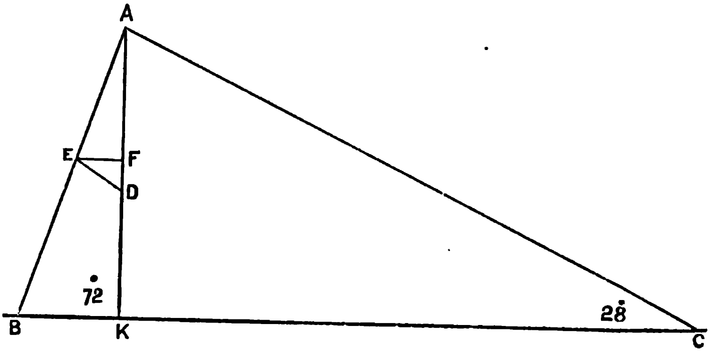
it is the complement of the angle ABC. EAD = EAC − DAC = 80° − 62° = 18°. We have then the triangle DEA, of which one side (AD) = 150

FIG. 12.



and the angles are known, to find the other sides. Draw EF at right angles to AD, and we have the formulæ:

AF : FE :: R : tangent EAF,
DF : FE :: R : tangent EDF, and
AF + DF = 150,

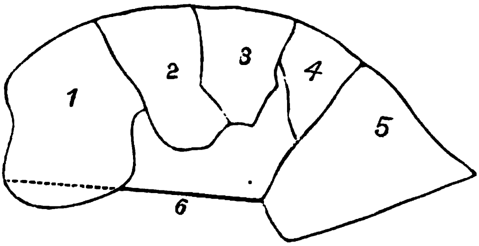
by means of which the values of EF, AF, and FD are found, from which AE and ED can be readily calculated. The latter are found to be 184.48 and 47.07 respectively.

The strain exerted along BC is now found by the formula BA (184.48) : KB :: R : cosine KBA, which gives KB (the rupturing strain) = 41.56. The same calculation repeated in the triangle ACK, in which AC = 47.07, gives, of course, the same value for CK.

As the centre of action of the ligaments of the foot lies about midway between the apex and base of the truss, this estimate must be doubled to obtain the actual strain upon them.

the cuboid (Fig. 13). Although the appearance is that of an arch, the function is that of a spring, and its elasticity is increased simultaneously with the sharpness of its curve by the contraction of the peroneus longus, the tendon of which represents the cord of the bow.

FIG. 13.



TRANSVERSE ARCH.—1, Cuboid; 2, Third cuneiform; 3, Second cuneiform; 4, First cuneiform; 5, First metatarsal; 6, Tendon of peroneus longus.

Action of the Muscles.—The tibialis anticus flexes the foot until it reaches a position at right angles with the leg, when to the movement of flexion is added slight abduction of the toes, with eversion of the sole. This apparently paradoxical movement is due to the fact that during the flexion the tendon of the muscle and its attachment to the scaphoid and first cuneiform pass to the outer side of the calcaneo-astragaloid axis, and enter the lower and outer quarter of a circle described about it. The movement then is referred to this axis, and is of course outward and upward.

The extensor communis digitorum flexes the foot and everts the sole. The peroneus tertius does the same. The eversion produced by these two muscles takes place about the calcaneo-astragaloid axis.

The tibialis posticus and sural triceps extend the foot, adduct the toes, and invert the sole. The flexor communis digitorum, and flexor longus pollicis do the same.

Adduction and inversion, produced by muscles whose attachments differ so widely as do those of the tibialis posticus and triceps, clearly indicate the obliquity of the calcaneo-astragaloid axis; their attachments, though so far apart, lie in the inner segment of a circle described about it, and, when this portion is raised, the outer lower quarter containing the cuboid (Figs. 6 and 7) is lowered and carried inward, producing adduction and inversion.

The peroneus longus extends the foot, contracts the transverse arch, and shortens the foot by drawing down the first metatarsal, and everts slightly. The peroneus brevis everts slightly, and abducts very slightly.

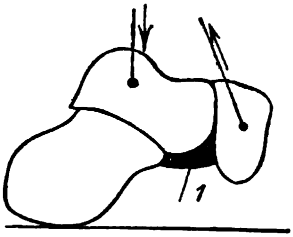
The flexor muscles occupying the sole of the foot approximate the heel and toes by flexing the metatarsal bones upon the tarsus. They supplement the plantar ligaments, and by their simultaneous contraction communicate the action of the triceps to the anterior portion of the foot, and thus prevent this muscle from exerting a too violent strain upon the truss.

The muscles work together harmoniously during the different acts of locomotion, by raising or lowering either end of the foot, supporting the anterior and inner bones of the tarsus, supplementing the resistance of the ligaments by an active, vital force, receiving and distributing strains, and accommodating the plantar surface to differences in the level of the ground. I shall describe only what takes place during the act of walking, since it may be taken as the type of all.

Suppose the body erect, the feet side by side, toes slightly abducted. The centre of gravity being brought over one foot, the other is thrown forward and followed by the body. As the heel of the second foot touches the ground, the muscles of the anterior aspect of the leg become tense. The principal of these, the tibialis anticus, regulates by its tonicity the descent of the anterior portion of the foot. As the union between the scaphoid and calcaneum is ligamentous and slightly yielding, any jar or shock is thereby avoided or diminished. A clinical demonstration of this action of the tibialis anticus, if needed, may be found in the pain felt in the body of the muscle after rapid walking. The mechanical principle involved is that of a lever of the second kind; the fulcrum being at the heel, the weight at the head of the astragalus, the power at the scaphoid.

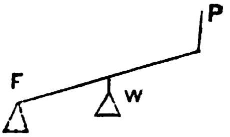
As the body is carried further forward, the muscles of th calf raise the heel of the first foot from the ground, extend th foot, inverting the sole, rotating the toes inward; the flexor of the calf and of the sole shorten the distance between th heel and toes, and receive part of the strain which would otherwise fall upon the ligaments of the plantar surface; the tibialis posticus holds the astragalus firmly against the scaphoid, the peroneus brevis supplements the action of the calcaneo-cuboid ligaments, the peroneus longus prevents any spreading of the transverse arch, and holds down the first metatarsal, and thus the truss, supported at all points by firm ligaments and the tendons of muscles which respond promptly and automatically to every call, receives without injury the impulse communicated by the vigorous contraction of the extensor group.

FIG. 14.



CALCANEO-CUBOID LIGAMENT.

FIG. 15.



PATHOLOGY.

The common fracture at the ankle known as Pott's fracture is produced by forcible abduction of the heel upon the external malleolus as a centre (Fig. 1). The strain thus brought to bear upon the internal ligament is in the direction of its fibres, and is sufficient to tear off part of the internal malleolus. The fibula is usually broken at the same time, two or three inches above the ankle. When the malleolus is pressed outward, the shaft is bent inward, and the fracture is the result of the excessive tension. In one case, I have seen dislocation of the upper end of the fibula take the place of its fracture. Occasionally, the fracture takes place somewhat higher up on the tibia, involving both bones on the same level, and occupying the line of the epiphysary cartilages.[1] Pott's fracture cannot be produced by a force acting through the axis of the tibia, even when the foot is everted as far as possible; the fracture produced under such circumstances is of the tibia, the anterior lip of its articular surface being broken off by pressure against the astragalus.

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[1] Of this, I have seen only one case; but I have known it to be produced several times upon the cadaver.

Forcible adduction of the heel does not so readily produce similar fracture of the fibula, the cross-section of its malleolus being greater than that of the internal malleolus at the point where the latter usually breaks, and the strain being less advantageously applied. The strain is met and gradually overcome by the elasticity of the shaft of the fibula, which bends outward when the tip of the malleolus is drawn inward.

Deformities are caused by weakness of the ligaments, or by unbalanced action of different muscles.

Splay-foot valgus is an example of the former. By the lengthening of the calcaneo-scaphoid ligament, the foot sinks and the toes are abducted. The internal lateral and the interosseous ligaments yield at the same time, allowing the under surface of the calcaneum to turn outward, and the astragalus and tibia to approach the ground; in short, the truss is turned upon its side. The difference between a splay foot and a flat foot is very great. In the latter, the angle at the apex of the truss is larger than usual; but the bones are in their natural relations, and all the functions of the foot are properly performed. In the splay foot, on the contrary, the bones are displaced, the weight of the body is not received upon the apex of an upright truss, the foot has lost all its elasticity, the toes are turned outward, and, instead of raising the heel and springing from the toes, the individual lifts the foot at each step without bending it.

There is another variety of valgus in which the instep is preserved. The ligaments are normal, and the distortion is due to over-action of the peronei.

Congenital varus has been supposed by some writers to be due to deficient development of the calcaneum. It seems more probable that it is due to contraction of the tibiales not sufficiently opposed by the peronei. The muscles which invert are more powerful than those which evert the sole, since they have to oppose the weight of the body when, acting through the head of the astragalus, it tends to lower the inner border. As a result of this extreme inversion and adduction, the head of the astragalus rises above the dorsum of the foot externally to the scaphoid, and the base of the fifth metatarsal and the tubercle of the cuboid become unusually prominent, as does likewise the outer edge of the greater process of the calcaneum by the sinking inward of the cuboid.

Pes cavus.—Here the ends of the foot are approximated by the contraction of the plantar ligaments, fasciæ, or muscles. The heel is shortened, the anterior part of the calcaneum raised, forming a more acute angle with the cuboid and fifth metatarsal, and the sub-astragaloid articulation may become much freer in consequence of the relaxation of the ligaments.

It has been asserted that all deformities due to paralysis or unbalanced action of the muscles must lie in the ankle-joint if the muscles involved are those concerned mainly in flexion and extension, and in the medio-tarsal joint in the case of others as a result of their attachment anterior to that joint. The error in this assertion results from a failure to appreciate the importance of the calcaneo-astragaloid articulation, and the fact that motion within it results from the action of almost every muscle of the leg and foot.

Translations.

Bone-formation after Resection of the Lower Jaw. By B. v. LANGENBECK.[1] Transactions of the "German Society of Surgery," Sixth Congress. Berlin, April 7, 1877.

GENTLEMEN: I am permitted to make this brief communication through the (as I may well say) exceedingly great attention which Prof. J. R. Wood, of New York, has shown, in sending this preparation here from New York by his assistant, Dr. Wiggin, in order to allow it to be demonstrated. Dr. Wiggin must return again to-morrow to New York, and, although our allotted time is very brief, nevertheless I have deemed it necessary to present this demonstration, because otherwise our distinguished American colleague would have sent us this really grand work in vain..

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[1] This article is a literal translation of B. v. Langenbeck's speech on the subject of Reproduction of Bone, delivered in the Aula of the University of Berlin, before the Congress of Surgeons, in April, 1877. The speech has been published in the "Transactions of the Congress," which book we have before us, and from which we have translated the entire address.

Prof. Wood, Surgeon to Bellevue Hospital, in New York, had the kindness to send me the photograph of this skull last fall—a skull of which the entire under jaw has been extirpated on account of phosphorus-necrosis, and of which the whole lower jaw has, in the course of a brief time, formed itself anew; and when, in my surgical lecture, I had showed and explained this photograph, *I did not believe that a corresponding preparation really existed anywhere*, he had the courtesy to send us this skull with the newly-formed lower jaw. I will quite briefly present the history of the operation, which is described in a short article by Dr. Wood in the "New York Journal of Medicine" for May, 1856, as the "Removal of the entire Lower Jaw, for Necrosis caused by Phosphoric-Acid Gas."

A girl—Cornelia S.—sixteen years of age, formerly always healthy, had worked in match-factories for two years and a half, one of which was very badly ventilated. She was occupied eight hours daily in packing matches, but enjoyed the best of health until May, 1855. At that time there took place, along with toothache, a swelling of the lower jaw, with suppuration. The patient, however, continued her work up to December, 1855.

Upon her reception into Bellevue Hospital, total necrosis of the right, and partial of the left, lower jaw existed, with profuse suppuration. The pus poured for the greater part into the cavity of the mouth, and outward through a fistula opening in the lower border of the mandibula. Notwithstanding this, her general health had remained good, and her appetite good, only chewing was very much impeded.

On the 19th of January, 1856, Dr. Wood made a resection of a part of the right lower half of the jaw, with most careful saving of the periosteum, and with preservation of the chin-portion of the lower jaw. Healing resulted without interruption, but it soon became evident that the entire remaining under jaw was diseased also, and this had likewise to be removed on the 16th of February, 28 days after the first operation. Excepting the retraction of the tongue ensuing upon the removal of the jaw, and the choking symptoms induced thereby, the good effect of the operation and the healing of the wound remained uninterrupted, and in March, 1856, the patient was able to be discharged, recovered.

The reformation of bone was *complete*, and the function of the new lower jaw left nothing further to be desired. In the photograph taken at this time, you observe the admirable contour of the lower jaw, of which the chin-portion only recedes slightly. Some years later, Cornelia S. died of abscess of the brain, and so Dr. Wood acquired the possession of this skull, which stands before you, and upon which you observe the entire lower jaw, with extremely complete form, only a very little smaller than the original must have been.

Formerly, cases of phosphorus-necrosis came into the clinic here not infrequently, and scarcely a term passed in which some jaw-resections were not performed. Thanks to the better ventilation in factories since 1864, scarcely any cases have come under observation, and it appears that phosphorus-necrosis will, at no very distant time, be eliminated.

I have performed subperiosteal resection of the entire lower jaw six times—four times in consequence of phosphorus-necrosis, and twice in consequence of acute osteo-periostitis. In all these case reformation of new bones was observed, and, indeed, as in the case operated upon by Dr. Wood, with most complete restoration of the function.

When one extirpates the entire lower jaw from under the periosteum at one sitting, the chin must invariably recede. The room for the formation of the new lower jaw is restricted by muscles, namely, by the genio-glossi; the contour of the new lower jaw develops imperfectly, and the chin-portion of it retreats more or less perceptibly. In order to obviate this evil, I have, like Dr. Wood, made the operation at *two differ-*

ent times, and at first cut out from the periosteum the smaller portion of the mandibula—which was, however, most diseased —leaving the chin and larger portion alone, and then, after four or six weeks, resected the remainder. But even then, as this photograph and the description given by Dr. Wood indicate, the lower jaw is always smaller, and the normal prominence of the chin is lacking.

This evil is almost completely avoided, if, as Billroth has recommended, one leave behind in position osteophytes from the necrosed bone, in immediate contact with the periosteum. This photograph shows you such a case. I cut out first the smaller part of the necrosed jaw-bone, and, after new bone could be distinctly felt—six weeks later—I cut out the greater part, with the chin-portion. The resected jaw here shows you that osteophytes were left almost completely around. The photograph, which is taken half in profile (August Matthes's), shows you that the contour of the lower jaw is very complete, and that the chin stands out in the normal manner.

The skull sent to us by Dr. Wood settles at once the question of the durability of the newly-formed bone. It has, indeed, been repeatedly maintained, that the newly-formed bone, after subperiosteal resection, cannot be of a durable kind, but that it subsequently must be reabsorbed. At all events, this may happen, and I have myself seen it in the case of a woman suffering from phosphorus-necrosis of the lower jaw, much reduced by long suppuration, whose lower jaw, newly formed after resection, was, after a twelvemonth, almost entirely reabsorbed. Such an absorption of bone is, however, a rare occurrence in my observation, and I can testify to the unchanged persistence after years of the new bone-formation, after subperiosteal extirpation, as well in the lower jaw as in long bones (tibia, radius, os metacarpi pollicis).

Dr. Wood's patient died some years after the operation, and yet you see the new lower jaw preserved in all its parts although a trifle smaller than was the original jaw.

Clinical Records from Private and Hospital Practice.

I.—*Two Cases of Separation of the Pubic Symphysis during Labor.* By R. B. Bontecou, M. D., Troy, N. Y.

Having recently observed two cases of this injury, the first in a practice of more than 30 years, a record of them may be of interest to the readers of your Journal.

Case I.—Mrs. G., aged about thirty-five years, of medium stature, fair complexion, blue eyes, and light hair, no known hereditary or acquired disease, and in good health, was confined June 24, 1877, with her seventh child (the last previous labor was in December, 1874). The head presented with the occiput to left acetabulum, and the labor progressed naturally and without difficulty, or any unusual symptoms, and was terminated in about four hours. The child weighed eight pounds, and its head was of natural, proportionate size. The placenta was promptly expelled. Patient bandaged, and left in a comfortable condition. The following day I found the patient complaining of pain in the lower part of the abdomen, especially when she turned in bed. Placing my hand there, I was unable to recognize anything but the firmly-contracted uterus, and suggested that it was uterine pain, as she had taken, after labor, a dose of ergot.

On the 26th inst. she still complained of the pain, and, moreover, a cracking or snapping noise when she moved her limbs. The husband asserted that he heard the noise, as if a bone was breaking, while sitting some little distance from the bed. Suspecting, now, that there was separation of the symphysis, I placed my finger under the arch, while the patient lay with her limbs both flexed, and could discover nothing irregular, even by using some force with my hand; but, when she extended one of the limbs alone, the pubis of that side slipped down past its fellow with an audible snap, and returned to its place when the limb was restored to its former position. Flexing and extending the opposite limb gave the same results. There was no tumefaction or tenderness about the symphysis apparent when touched; and, when both limbs were flexed and extended together, no separation of the bones took place. I at once procured some adhesive plaster and applied a bandage of it, reaching from the trochanter to the short ribs, very tightly about the pelvis, and snugly about the abdomen, to take the place of the ordinary bandage. Under the lower edge was placed some cotton-flannel, to prevent cutting, and the hairs shaved from the pubis. This gave at once a comfortable support and a feeling of security; and, with the knees tied together, she could flex and extend the limbs, and change posture, without producing a luxation of the parts again.

The patient was kept in bed two weeks before being allowed to sit up, and, after that, was occasionally put in a chair, so that, by the 26th of July—about four weeks from the time of the accident—she was able to walk about the room, and soon thereafter attended to her household duties, and remained well ever since, not feeling any lameness or weakness of the part injured.

I attended this lady in her six previous labors, which were all natural, comparatively easy, and unaccompanied by any unusual symptoms.

Case II.—Mrs. P. W., aged twenty-four years, dark complexion, dark eyes and hair, small, symmetrical stature, and no known hereditary or acquired disease, was confined with her first child, October 22, 1877. She was unusually large for a primipara, and had been expecting her sickness some weeks before; had suffered much from the great abdominal distention, and from backache and pains simulating labor; otherwise in apparent good health. The child presented with occiput to left acetabulum, and labor pursued a natural course, though somewhat tedious from inertia of the uterine and abdominal muscles, but presented no other noticeably unusual features, and lasted about six hours. A large amount of liquor amnii was present. The child weighed about eight pounds, and its head was of proportionate size, and not too firmly ossified. The placenta was soon after expelled, patient bandaged, and, after the a ministration of an anodyne, was left in a comfortable condition The following day she complained of pain in the pubis, an an inability to turn, or move her limbs, without aggravatin it, but did not recognize any noise or motion of the parts. My suspicions were aroused, and, upon examination, I found decided movement of the ossa pubes, at the symphysis, when the limbs were separately moved. The extent of motion did not exceed half an inch—not sufficient to allow one to slip by the other—and there was no appreciable snapping, as in the former case. The knees were tied together, and adhesive-plaster bandage was applied, and worn, with renewal, for six weeks, as the patient was not until that time able to walk without it, although she did walk with assistance the fourth week after the accident. She has ever since been well, and has no lameness or weakness of the injured part.

The adhesive-plaster bandage seemed to fulfill all the indications in these cases, and answered admirably as a substitute for the ordinary binder, keeping its place without trouble, and giving a comfortable support.

Clinical Reports of the Demilt Dispensary.

CLASS IN GENERAL SURGERY.

By Dr. T. E. Satterthwaite.

Surgical practice in the dispensaries of this city is peculiar in many respects. The cases that come under notice may be either of a kind that are seldom seen in private or hospital practice, or they may exhibit modifications peculiar to the class that seek for aid. The course of a disease and the treatment are for similar reasons different. The following notes illustrate some of these points:

Internal Urethrotomy for Deep-seated Stricture, performed Three Times upon the same Patient.—J. S., twenty-six years of age, plasterer, came under treatment December 17, 1877. He was then suffering from difficulty in making water, and his urethra would only admit a No. 9 Fr. (about No. 3 Eng.) instrument. In 1875[1] he was suffering from retention, and puncture of the bladder through the rectum was performed. Some days afterward (September 24, 1875) the urethra was cut with Otis's dilating urethrotome (No. 4). Dilatation was then carried up to 30 (F. S.). In January, 1877, the stricture, which had been gradually contracting, became so narrow that only a whalebone guide could be entered. Urethrotomy was again performed with Otis's urethrotome (No. 4), and this time dilatation was carried up to 35 (F. S.). The patient was then directed to use a sound (No. 23, F. S.), which he did at intervals until the following October, when the instrument was lost. His stream then became gradually smaller. On December 17th he came to have the operation repeated for the third time, as micturition was painful and tedious, and the stream very small. The stricture was about seven inches from the meatus, and clearly organic. He was accordingly etherized, and the stricture, being dilated to 35 (F. S.), was cut with the same instrument as before. After the operation, a No. 28 (F. S.) sound, the largest in hand, was successfully introduced. Quin. sulph. gr. x was immediately given, and tinct. ferri mur. gtt. xv was ordered to be taken three times a day. The patient did well after the operation, and came at intervals for some weeks to have an instrument passed.

Impacted Fracture of the Radius at the Carpal Extremity.—The following cases illustrate a class of fracture that is not uncommon at the Dispensary, and a method of treatment which has proved eminently satisfactory.

Case I.—E. M., forty-nine years of age, Ireland, came to the Dispensary March 6, 1878. Eight days previously she fell upon her right hand, sustaining the above injury. On examination, the carpal extremity of the right radius was found thickened, the hand everted, and the right styloid process of the ulna abnormally prominent. On further manipulation, an irregularly transverse line of fracture could be detected three-eighths of an inch (by actual measurement) above the joint, the lower portions of the bone bein thrown backward and slightly inward. Grasping the han pronation and supination could be effected without producing crepitus, and with little pain. There were no signs of ecchymosis. The tendon of the extensor carpi ulnaris, whose displacement in these fractures has been pointed out by Prof. Moore, of Rochester, was in the proper groove external to the styloid process. Attempt was then made by traction to remedy the deformity, but, though it was continued steadily for several minutes, no reduction was effected.

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[1] "Clinical Reports of the Demilt Dispensary." New York Medica Journal, July, 1877.

After an interval of a few minutes the attempt was repeated, this time with considerable force, an assistant drawing the arm slowly backward, while steady traction was made upon the forearm, and lateral pressure was exerted by the fingers upon the broken extremity, to force the portion or portions into place. Suddenly, after two or three minutes, a snap was heard and felt, and the line of the bone was restored. The abnormal breadth of the radius at the carpal extremity disappeared, and the motions of the hand on the wrist were as full and free as those of its fellow on the opposite side. Antero-posterior splints were then applied, with suitable pads, and the deformity seemed to be perfectly remedied. The treatment of these fractures, occurring anywhere in the continuity of the radius from just beyond the articular extremity to a point one and a half inch above, are conducted upon almost precisely the same principle. It is a method that was for years in vogue at the New York Hospital.

Its application is so simple, and has in so many instances been observed to effect union without any deformity that could be detected by ocular evidence, that I give the details as I have carried them out. Two strips of inelastic wood (white wood is excellent for the purpose), one-quarter of an inch thick, are selected. Each should be the breadth of the arm in its greatest vertical measurement, when compressed laterally between them.

The splint for the outer side should reach from just below the head of the radius to three-quarters the distance from the wrist to the knuckles. The inner splint should extend downward to the same distance, but should not extend upward quite so far, in order to prevent unpleasant pressure upon the parts in the neighborhood of the joint. Each splint should be lined with one or two layers of some soft, firm material, such as flannel, which can be held in place by narrow strips of adhesive plaster. In all fractures near the carpal extremity, where there is much deformity, or such that cannot be immediately reduced by the pressure of the lateral splints directly, pads should be inserted. In many cases the lower fragment, which is displaced backward, cannot be retained in proper position after reduction, unless a pad be placed on its posterior surface, and correspondingly another pad on the anterior surface of the upper fragment. Then, when the splints are approximated, after steady traction has allowed the lower fragment or fragments to be liberated and placed opposite the normal position, the pads will aid the splints in forcing them strictly into line. If the lower fragment is still thrown inward toward the ulna, and the fracture is sufficiently far above the joint (say at one and a half inch) to admit of an interosseous pad, this adjuvant in the treatment should not be omitted, though it rarely comes into use. Another pad is often very useful, and, indeed, very comfortable. This is upon the carpal extremity of the ulna, and it may be laid in between the splints and retained in place by one of the three strips of adhesive plaster, that are the only means to be employed in keeping the splints in place.

The advantage of this pad may be drawn from the following facts: It is not uncommon in this fracture that there is an actual slipping of the extensor carpi ulnaris tendon out of its proper groove, and, associated with this, a displacement of the ulna, due, perhaps, to a rupture of the internal lateral ligament, the displacement of the tendon, or both. This deformity I have observed upon several occasions, and in one instance had an opportunity of putting the matter beyond peradventure, by an examination of the cadaver, when both wrists were broken and both tendons were displaced. This, however, happened to be an extreme case, as the man had fallen from a great height and sustained other severe fractures and injuries, of which he died. In a certain number of cases this displacement does occur, however; and where there is no swelling and the patient is thin or the bones are prominent, the tendon can be readily detected when the hand is inclined toward the radial side. Using Dr. Moore's method, and inclining the hand toward the ulnar side, the tendon can easily be slipped back into its place, and there retained by a narrow strip of adhesive plaster. The reduction of the tendon should be done with the left hand, while at the same time the carpal extremity of the ulna should be pushed toward its proper position. Meanwhile, traction should be made with the right hand, and, the extremity of the ulna acting as a fulcrum, reduction will be much facilitated. This method has had an excellent opportunity of being put to a practical test in 29 cases that have been thus treated by myself and assistants at the Dispensary, during a period a little less than three years. It is doubtless a fact that many cases of fracture quite near the radio-carpal articulation, when they are impacted, are regarded as sprains even by many physicians; and impaction, in my experience, is not very uncommon, and especially in women about middle life, or somewhat later on. In such cases I have occasionally failed to reduce by manual means, and, giving ether, have succeeded both in proving the question of impaction and established a useful arm, free from deformity. The methods here alluded to, especially the use of the pads and the advisability of breaking up impacted fractures, are alluded to by Dr. Van Buren,[1] of this city, in a note to Dr. Cowling; and the use of the antero-posterior splints with pads is spoken of as being put in use by himself 25 years ago, at the suggestion of Fenger, a Danish surgeon; and I am glad that I have the authority of so distinguished a surgeon as Dr. Van Buren for advocating the reduction of these impacted fractures, as I would in selected cases, though it is well known that some eminent surgeons discountenance it. The splints used by Dr. Van Buren do not reach beyond the radio-carpal joint, while I have always carried them well on toward the knuckles. When used of this length, they prevent œdema of the dorsum of the hand; and I have not found that stiffness of the joints results, if passive motion is begun at any early period—three to four weeks in children, and between four and five in adults. The practical rule[2] of commencing passive motion, when fractures are near joints, a week earlier than usual, I believe to be excellent.

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[1] *Louisville Medical News*, January 19, 1878.

[2] Of the elder Warren, quoted by Van Buren.

Case II.—Kate Daly, aged thirty-eight years, born in Ireland. Patient states that four weeks ago she fell in the street, striking her hand against an iron railing. She applied liniments, and kept the arm in a sling. On examination, it was found that the deformity was much as in the case just given. There was an increase in the antero-posterior diameter of the radius just above the radio-carpal joint, but no line of fracture could be made out. In this instance it was evident that the tendon of the extensor carpi ulnaris was displaced outward, for it could easily be felt in its new position, when the hand was inclined toward the radial side. Refracture was not thought advisable in this instance, as the line of fracture was probably very near the joint, and the patient would in all probability recover with an arm as useful practically to her as the other.

Treatment of Inverted Toe-Nail.—So many plans have been recommended for the obstinate and annoying affection which goes by this name, that novel treatment is hardly to be expected; and yet the plan adopted at the Dispensary answers the purpose admirably in the class of patients that come for relief.

Having tried the various methods recommended, including elevation of the edges, removal of the nail, etc., and found them unsatisfactory in the main, perhaps because the patients did not carry out the directions given them, I was led to pursue a plan which was suggested by a former pupil of mine, Dr. H. E. Jones. It consisted in removing that portion of the nail, including the matrix, which produced the soreness, and then applying the actual cautery to the base. The following cases will illustrate the treatment and its results:

Case I.—C. F. R., aged twenty-three, came to the Dispensary September 26, 1877.

For two months she had been unable to put on her shoe, from the pain due to an inverted toe-nail. A narrow slice of the offending portion of the nail was removed under ether, and the base was burned with the actual cautery.

October 3d.—The patient returned, much relieved. The ulcer was now dressed with balsam Peru.

January 7th.—Patient was seen, and it was hard to recognize that any of the nail has been removed. The patient walks with perfect ease, and wears a shoe without the least inconvenience. A little soft, ill-formed nail has formed in the cauterized matrix, but has not grown forward or laterally, and, indeed, seems to be of such an imperfect material that it cannot be of any inconvenience.

Case II.—E. R., aged eighteen, Ireland, came to the Dispensary October 12, 1877.

Patient states that her nail began to trouble her in the preceding spring. On examination, the right toe-nail is found to be inverted, and surrounded by a mass of angry fungous granulations. Etherized, and the portion of the nail that was the source of the trouble removed. Nitric acid was applied to the base.

October 16th.—Patient returned, feeling much relieved.

January 23d.—The toe from which the nail was removed is now in a perfectly healthy condition.

This treatment seems to be specially applicable to the class of patients that come to the Dispensary. They are usually servant-girls, who are anxious to resume work as soon as possible, and cannot afford to give the time necessary to the other methods of curing this deformity. In some cases where the nail is excessively thickened, it would appear to be an appropriate remedy for persons in any condition of life.

Radical Cure of Hydrocele in Infants.—The palliative treatment of hydrocele in the adult has been much improved by the use of the aspirator. Using Dieulafoy's or Potain's instrument, it is not necessary to make an incision into the skin before introducing the trocar, for the sharp point can easily and almost painlessly be made to penetrate into the cavity of the tunica vaginalis, and then, when the chamber is exhausted, quite a fine needle will suffice usually to withdraw all the fluid in a very rapid manner. Those who have attempted the radical cure of hydrocele in infants will have doubtless had occasion to observe that the sac will fill up again with fluid after it has been punctured in the ordinary way with needles. The necessity of repeating the operation once or more induced me, in one case, to introduce a seton and keep it in for some weeks, but the failure of the plan also led me to follow it up with another adjuvant, which has proved entirely successful. The case is as follows:

A. M., aged two, New York, was brought to the Dispensary in the autumn of 1877. The mother had noticed a swelling of the left scrotum for some time, and, as it grew larger, came to have treatment adopted. The symptoms of hydrocele, such as the pyriform tumor, translucent contents, dullness on percussion, as well as other negative signs, were well marked. As has been the practice, the scrotum was punctured by the glover's needle of large size in about 30 places, with the hope of inducing inflammatory action, and so adhesion of the confronting surfaces of the tunica. The child returned in two weeks, and no improvement was noted. The puncture was again resorted to, and again the child returned with no improvement. The child returning a third time, a needle armed with a stout double thread was carried through the tunica, and then allowed to remain *in situ* several weeks. Some induration appeared about the line of the thread, but the effusion remained in a large portion of the sac. It was now decided to try the puncture with needles once more, and follow up this plan with the use of a well-fitting suspensory bandage. This latter application proved to be appropriate, and the desired adhesion soon took place.

Treatment of Enlarged Prostate.—It has been found desirable in the Dispensary practice to adopt a method of treatment for enlarged prostate, obviating the use of any instrument, as the patients are usually unable to buy one. A certain amount of relief is obtained by the fluid-extract of buchu or of triticum repens, when the secretion is turbid or acrid; but their efficacy is, of course, slight when unaccompanied by the introduction of the soft catheter. It was my good-fortune to try the effect of the fluid-extract of ergot in large doses for those cases, and was tempted to do so by the success I obtained from it in treating a case of simple incontinence without enlarged prostate. The treatment proved successful, and is now a standard one with us in the surgical department. The following case will illustrate the way in which it acted:

W. M., aged twenty, laborer, came to the Dispensary May 10, 1876. He stated that for some 10 or 11 years he had suffered from dribbling of urine. On May 3d his troubles were much aggravated, and he came for relief. A catheter was introduced, relieving his bladder. The patient was then at once put upon the fluid-extract of ergot in teaspoonful-doses, to be taken three times a day. Previously he had passed water with extreme pain and difficulty seven or eight times a day, and from four to five times at night. He experienced great relief from the ergot.

May 23d.—He reported that his water was now passed only five times a day, and twice at night. The water is clear, and there is little pain in passing it. In cases where the patient can buy the soft, elastic catheter (Nelaton's), it is recommended, with directions to use it twice or three times daily. This treatment may be combined with the use of ergot; but ergot alone has been found of great advantage, the patients returning at regular intervals to have their medicines renewed.

Proceedings of Societies.

NEW YORK MEDICAL JOURNAL ASSOCIATION.

Stated Meeting, February 1, 1878.

Dr. R. F. Weir, President.

Treatment of Hip-Joint Disease.—Dr. Chas. F. Taylor read a paper on the above subject, and said that his purpose was to learn whether he was wrong in his treatment of the suppurative stage of morbus coxarius, and, if he was wrong, to learn a better method of treating the disease than he was in the habit of practising. If, however, bad cases had recovered without operative interference, he considered himself justified in waiting for a decided opinion of the profession. He had asked many surgeons in regard to their opinions as to the result of excision of the hip-joint, and he had been informed that their success was not such as to lead them to rely much on the operation. Dr. Taylor said

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months. One of these, however, was
the hip-joint, while the other was a
r. In one case the disease lasted fifteen
hat time there had been no treatment.
one year; eight lasted two years; twenty
; thirteen lasted four years; eleven lasted
asted six years; six lasted seven years; five
rs; two lasted nine years, and three lasted ten

to the health: Sixty-nine of the cases were of
lth, or better than average health; eleven were
d might, under sufficient provocation, suffer a re-

In regard to the amount of deformity: The angle of greatest extension of thigh on the pelvis was 135° in nineteen cases, and 145° in nineteen cases. Either of these angles allowed of comfort in walking. In eighteen cases the angle was 150°; in eleven, the angle was 160°. The angle of greatest deformity was 90° in two cases, 110° in three, and 120° in three.

In regard to motion: Thirteen cases had motion at the hip, and the remainder were anchylosed. Forty-eight cases suppurated; the remainder did not. A point of interest in regard to the opening of abscesses was, that four cases of distinctly fluctuating tumors, regarded as abscesses, were not opened, and by pressure were dispersed. The contents of these fluctuating tumors were serum, in all probability, and hence their harmless dispersion.

In regard to shortening: The greatest amount noticed was four inches, which occurred in two cases. Neither of them had ever received treatment. Seven had three inches of shortening, and only one of these was under treatment for a reasonable length of time; seven had two and a half inches of shortening; nineteen had two inches; seventeen, one and a half inch; twenty-four, one inch; two, one-half inch, and one (the case of acute synovitis) had no appreciable shortening. The average shortening was one and three-fourths of an inch.

In regard to locomotion: Sixty-one of the cases were able to walk long or short distances without a high shoe, without a crutch or cane, and without any ill consequences; twelve cases required a cane or crutch for long distances, or were liable to fatigue. In the cases in which fatigue appeared, it was due to the fact that a sufficient time had not elapsed since the cure. Seven cases required the use of crutches, or walked in a distorted manner, the hand resting on the knee. It was frequently noticed at the hospital that time improved the gait in some cases, due very much to the spinal column and pelvis accommodating themselves to the deformed extremity.

THE THERAPEUTICAL SOCIETY OF NEW YORK.

THE second stated meeting of the Society was held February 8, 1878.

The Committee on Neurotics announced the following additional subjects for observation:

1. The efficacy of the bromide and chloral mixture in other nervous affections than epilepsy.
2. The efficacy of aconitine internally in trigeminal neuralgia.
3. The effect of Squibb's spirit of nitrous ether upon the calibre of blood-vessels.
4. Metallo-therapy.

The Committee on Electro-Therapeutics has the following questions before it:

1. The comparative efficacy of different galvanic cells.
2. To find a practical means of measuring the strength of galvanic batteries in clinical use. (Dr. A. McL. Hamilton, chairman; Dr. N. B. Emerson, secretary.)

The Committee on Apyretics has the following subjects before it:

1. Effect of large doses of calomel (20, 30, 40, and 60 grains), in reducing temperature, and cutting short acute inflammations.[1]

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[1] The following note is furnished by Dr. Leaming, who has had extensive experience in this use of calomel:

"It is proposed to apply this method only where ordinary means are likely to fail. To use the language of Dr. Graves: 'Not to the treatment of inflammations, either slight in degree or occupying parts not essential to life, but to those violent attacks of inflammatory action which so often prove fatal in the course of a few days, or even hours, by destroying the texture and function of vital organs.' Pericarditis, peritonitis, hepatitis, pneumonia, pleuritis, and dysentery, are the diseases Dr. Graves mentions, as well as iritis. As to its mode of exhibition, Dr. Graves also observes: 'We ought to affect the constitution decidedly, and as speedily as possible, by means of calomel, given, not in small doses often repeated, but in doses of a scruple, once or even twice daily.' And he quotes Dr. Johnson's classical work on 'Diseases of Tropical Climates,' showing that large doses are much less apt to be rejected by the stomach, and much less likely to gripe, or produce troublesome purging, than small and frequently-repeated doses. 'The patient,' he directs, 'must take no cold fluids, and he should not consume more than three pints of drink in the 24 hours, to avoid mercurial diarrhœa.' It is suggested to those who make use of calomel in this way to carefully note the physical signs and the symptoms with the pulse and the temperature for some hours before giving the calomel, and, where possible, to use no other remedies. Also, in severe cases, to note all the signs and symptoms at the shortest practicable intervals for the space of six hours or more after the dose is given, and the general effects after three days. Further, that it should be placed dry and alone upon the tongue, and should not be washed down, and that the dose should not be limited except in the discretion of the practitioner, one scruple being the minimum to an adult, while a drachm may be used, if necessary, endeavoring to give in one dose all that may be necessary, so that, if possible, there be no repetitions; thus differing in some degree from the directions of Dr. Graves." ("Clinical Medicine," Dublin, 1843, pp. 803, 804, 805.)

2. Comparison between antipyretic effect of quinine and of other alkaloids of cinchona.

3. Antipyretic effect, as tested by thermometer, of inunctions with liquid or with solid fats. (Dr. Mary Putnam-Jacobi, secretary.)

The Committee on Surgical Procedures and Appliances, including Topical Medication (Dr. Charles McBurney, chairman), has the following subjects for observation:

1. The use of ether to the stage of "first insensibility" only—stopping short of the stage of excitement—for short operations, not likely to be attended by much hæmorrhage. (*See American Journal of Medical Sciences, July*, 1877, p. 130.)

2. The injection of concentrated carbolic acid into vascular tumors.

3. The use of monochloracetic acid as an escharotic.

Dr. E. C. Seguin then read the following report:

Mr. President and Gentlemen: The Committee on Neurotics, for which I have the honor to speak, has had under consideration several important questions, and upon two of these they are prepared to report; finally, upon the first question, viz.: the Utility of Potassium Chloride in Epilepsy; but only provisionally upon the second, viz.: the Use of a Mixture of Bromides and Chloral in Epilepsy. We merely wish to report progress upon this question, and propose continuing the study of it for a longer time.

Report on The Use of Chloride of Potassium in Epilepsy:

In 1873, my friend, Prof. Binz, of Bonn, published in the *Deutscher Klinik*[1] an interesting paper upon The Use of Bromide of Potassium. The conclusions of the article are obscure, and perhaps it is best to speak of the drift of the author rather than of his opinions. Prof. Binz doubts the hypnotic qualities of KBr, and has not much faith in bromic therapeutics. Chiefly on experimental grounds he is inclined to the view that the sedative effects observed during the use of full doses of KBr are produced by the potassium, and he asks whether KCl might not be equally as useful as KBr.

At the time of receiving the reprint of Dr. Binz's article, I was visiting physician to the Epileptic and Paralytic Hospital on Blackwell's Island, and I was led, partly by a desire to test the question propounded by Dr. Binz, and partly from economic reasons, to try the substitution of KCl for KBr in a number of the patients under my care.

With this object in view, I asked the pharmacist of Bellevue Hospital to supply me with a quantity of KCl, and proceeded to carry out a somewhat systematic experiment. I must also state that the patients upon whom the experiment was to be tried were incurable epileptics of the worst class, medically and socially. Many of them were addicted to self-abuse, and to other exciting causes of seizures. Their diet was rough, though sufficient, and they were too much crowded together in the wards

On the other hand, the success of the experiment was favored by the possibility of giving medicine regularly, and of registering attacks with tolerable accuracy.

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[1] No. 48, 1873.

In 1872 a trial of the positive efficacy of potassium bromide had been made by administering to the same patients a placebo of quinia, or of common salt, for one or two months, and comparing the number of attacks occurring under this negative treatment with that occurring under the use of potassium bromide for a similar period. Fourteen patients were thus treated. The results are embodied in Tables I. and II.

In 1874, 21 patients (3 males and 18 females) were given chloride of potassium regularly three times a day for one month, in the same doses as the potassium bromide had been given them. The doses were 8 grains three times a day, and 24 grains at bedtime—a smaller quantity than I now employ. The striking results are embraced in Tables III. and IV.

In Table V., the number of attacks occurring in 13 of the above patients under KCl, in one month, is contrasted with the average number per month calculated from the total number in three months under KBr.

TABLE I.—Number of Attacks in Six Male Epileptics while under Placebo of Quinia Sulphas for One or Two Months, and under KBr for a corresponding Period.

NAMES.	ATTACKS UNDER KBR.			TOTAL.	ATTACKS UNDER PLACEBO.			TOTAL.
	March,	April,	May, 1872.		March,	April,	May, 1872.	
M——m........	0	9	5	14	12	0	11	23
L——x.........	8	11	..	19	44	43	..	77
R——r.........	3	..	..	3	22	..	..	22
K——n........	Average of 3 months...			2	19	..	..	19
F——n.........	" "			1	12	..	..	12
Sch——g.......	Total of 3 months.....			12	7	7	3	17
				51				170

KBr reduced attacks by 70 per cent.

TABLE II.—Number of Attacks in Eight Female Epileptics while under Placebo for One Month, and under KBr for a similar or corresponding Period.

NAMES.	ATTACKS UNDER KBR.	ATTACKS UNDER PLACEBO.
	Average of Two Months, 1872.	One Month, 1872.
B——l..................	2	7
B——z..................	8	78
B——n..................	5	12
G——r..................	10½	9
K——y..................	1½	6
K——s..................	4	7
M——n..................	9	28
M——y..................	3	7
	43	149

KBr reduced attacks by 71 per cent. (about as in males).

TABLE III.—Number of Attacks in Three Male Epileptics while under KCl for One Month, and under KBr for the same Length of Time (Consecutive Months).

NAMES.	ATTACKS UNDER KBR, 1874.	ATTACKS UNDER KCL, 1874.
R——r	19	83[2]
K——n	3[1]	21
F——n	0	11
	22	115

KBr reduced attacks by 81 per cent.
KCl aggravated attacks by 81 per cent.

TABLE IV.—Number of Attacks in Eighteen Female Epileptics while under KCl for One Month, and under KBr for the same Length of Time (Consecutive Months.

NAMES.	ATTACKS UNDER KBR, 1874.	ATTACKS UNDER KCL, 1874.
B——l	..	14
B——s	65	63
B——n	23	32
G——r	54	38
K——y	..	5
K——s	36	34
M——n	31	29
M——y	13	7
P——e	5	23
M——n	..	[illegible]
O——s	2	33
R——r	25	27
T——e	7	42
F——t	..	[illegible]
H——s	3	21
K——y	9	42
K——e	6	[illegible]
W——e	4	[illegible]
	283	431

Attacks aggravated by KCl by [illegible] per cent.

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[1] Average of three months.

[2] R——r was in great danger from status epilepticus at [illegible] day of KCl, and [illegible] for one month preceding, and was given bromide and large doses [illegible] days, after which the KCl was resumed.

TABLE V.—Number of Attacks in Thirteen Female Epileptics while under KCl for One Month, as compared with the Average Number per Month in Three Months under KBr.

NAMES.	ATTACKS UNDER KBR.	ATTACKS UNDER KCL.
	Average of Three Months, 1873.	One Month, 1874.
B——l	1	10
B——z	5⅓	65
B——n	7⅓	32
G——r	9	38
K——y	0⅔	5
K——s	4⅓	54
M——n	9⅓	19
M——y	1⅓	7
P——e	6	15
M——n	7	11
O——s	5	33
R——r	13	17
T——e	0⅓	42
	70	348

Attacks aggravated by KCl treatment by more than 79 per cent.

Tables I. and II. demonstrate what is now generally admitted, viz.: that KBr has a positive restraining influence over epilepsy. It should be borne in mind, however, that the doses given were very small.

Tables III. and IV. conclusively answer Prof. Binz's query as to the efficacy of KCl. It is almost inert with respect to epilepsy, nearly as many seizures occurring during its use as during the use of a placebo.

These tables also show that the K cannot be the efficient element in KBr, because the KCl contains much more K than KBr. According to the atomic weights of K, Cl, and Br, 100 grammes of KCl contain 52.4 grammes of K, while 100 grammes of KBr only contain 32.9 grammes of K.

We may conclude:

1. That KCl and K are not efficacious in the treatment of epilepsy.
2. That KBr and the bromides are positively useful in reducing the number and severity of epileptic attacks.

In closing this short contribution, I would express my thanks to my friend, Dr. D. C. Cocks, House-Physician to the Epileptic and Paralytic Hospital in 1874, by whom the above materials were collected under my direction.

(*To be Concluded in next Number.*)

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, February 19, 1878.

Dr. A. J. C. Skene, President, in the Chair.

Dr. J. Ellis Blake exhibited an apparatus for the administration of nitrous-oxide gas in combination with air, as a tonic. It was, he said, possible to take a large quantity of the nitrous-oxide without any unpleasant effects, provided a small quantity of air were given at the same time. Complete anæsthesia was impossible unless the air were entirely shut off. Dr. Blake thought the gas would prove very useful as a tonic, and said he had found an increase of appetite follow its administration, as the first effect. He considered it a much better way of supplying oxygen to the blood than the inhalation of pure oxygen gas, which seemed to have proved unsatisfactory.

Dr. Fordyce Barker said that in 1857 he was called to see a young lady suffering from tuberculous disease, who was attacked with severe capillary bronchitis. Every breath was a struggle, and she was cyanosed, and in an apparently hopeless condition. He determined to try oxygen gas, and was in search of it, when Dr. Doremus suggested nitrous-oxide gas as better than pure oxygen, because absorbed much more rapidly. It was accordingly given, with some air, and the result was highly satisfactory. There was no anæsthesia, but breathing became perfectly easy, and the patient lived for three years afterward, and died of phthisis. In 1860 he had used the gas again in the same way, in a patient suffering from complete collapse after labor. The result was equally satisfactory. In a third case where he had employed it he had left the patient, as he supposed, dying, but had advised keeping up the gas, and recovery took place. He had now a patient on whom Dr. Blake was using the gas. The improvement was already ver marked.

Dr. Blake said he administered four to five gallons on a day, for four or five days. He found that it enabled th patient to sleep well.

Dr. **Barker** mentioned that in his patients it also caused a tendency to sound, refreshing sleep.

Dr. **Skene** referred to a paper on the subject by Dr. G. W. Brush, in the "Transactions of the Kings County Medical Society" for December, 1877. He was surprised to hear from Dr. Blake that the administration of oxygen gas was a failure. In some experiments made with it in Brooklyn, excellent results were obtained.

Dr. **Mann** mentioned some experiments made in the old New York Hospital, where he had the care of 12 patients who took oxygen gas. They were very much improved by it, and gained in weight every week during the month it was given.

Dr. **Barker** said that some years ago he had tried oxygen gas, but had been disappointed in its effects.

He then related three cases of septicæmia, which had some features in common, and yet some points of difference.

The first case was that of a lady a little more than twenty-three years of age, three months pregnant, who was coming over from Europe, and was taken with hæmorrhage five days before the arrival of the steamer. He examined her, and removed an extremely fetid ovum, with clots. She then had all the symptoms of septicæmia. Septicæmic pneumonia developed, and the patient died after two weeks.

The second case was that of a young lady in the eighth month of pregnancy. She had been growing constantly weaker for some time before he saw her. She had then almost complete amaurosis. The urine was found to contain fully 80 per cent. of albumen. She was put on digitalis and chloride of iron, and a milk-diet, and in the course of three weeks the albumen had almost entirely disappeared. She was quite restored to health at least ten days before labor began. Such complete recovery *before* labor he had never seen in any other case. The labor progressed favorably, but 24 hours afterward the temperature went up to 103° and 104°, and the abdomen became extremely tympanitic, but was free from pain. Violent mania developed on the fourth day, and the patient died that evening.

The third case was one he had seen two weeks ago. The patient had been delivered with instruments. She was not seen by Dr. Barker till 60 hours after the delivery. The bladder had not been emptied, and the abdomen was extensively tympanitic. The pulse was 145, temperature 104½°, and respirations 56 per minute. There was laceration of the perinæum, vagina, and cervix, with septicæmia. She was given 40 grains of quinine daily, with bromide of potassium and opium, and was supported by stimulants. The patient recovered.

Dr. CHAMBERLAIN said he had been impressed with the painlessness of septic peritonitis. He spoke of a plan of treatment he had adopted in Charity Hospital in such cases, when the temperature went up to 103° or 104°—viz., the use of sulpho-carbolate of soda. He believed it exercised a marked influence in checking a septicæmic tendency. He was using it in diphtheria also—5 to 15 grains every two hours—with excellent results, in connection with carbolic acid, quinine, and the usual supporting treatment. He used Mawson's preparation of sulpho-carbolate of soda.

Dr. JANVRIN related the case of a child five weeks old, to which ten drops of Squibb's liquor opii co. had been given in mistake for paregoric. The child had ceased breathing, and the heart could just be heard. He immediately applied the battery, using it first at one-third of its power, gradually increasing it to its full force. The positive pole was applied over the phrenic nerve, and the negative pole over the diaphragm. After about seven minutes the child began to breathe, and the strength of the battery was then gradually diminished. He gave $\frac{1}{300}$ grain of atropine, and injected brandy in the rectum. During the day (treatment began at 4 A. M.) the child had five attacks of suspension of respiration, lasting from three to five minutes, and requiring the full power of the battery to overcome them. Artificial respiration was kept up at intervals till 11 P. M.

About noon on Saturday erysipelas of the face and head developed. The temperature went up to 104½° on Monday, and a cold pack was used. The temperature went down to 102° within the first two hours, then to 101°, and had since been as low as 99°. The child had now a good prospect o recovery.

Stated Meeting, March 5, 1878.

Dr. A. J. C. Skene, President, in the Chair.

Dr. Hanks presented, for Dr. Lusk, a fœtus with imperforate urethra and dilatation of the ureters and bladder. The head of the child was delivered naturally, but the body was arrested by the abdominal enlargement. There were found to be two distinct collections of fluid—one in the enormously distended bladder, the other ascitic fluid in the abdominal cavity. The ureters were about half an inch in diameter. The urethra was occluded.

Dr. **Noeggerath** said that, as fissures in the abdominal walls, even down to the bladder and urethra, were owing to arrest of development and imperfect closure of the walls, so occlusion was due to an exaggeration of the normal process of closure and development.

Dr. T. **Addis Emmet** related two cases. The first was one illustrating the difficulty of distinguishing between fibroid and ovarian tumors. A small tumor was detected last April, and ergot was given before the case came under his care, with the result of causing congestion and peritonitis. The case was seen later by Drs. Peaslee and Thomas, who pronounced it ovarian. The fluid first taken from it gelatinized on cooling. The second time, the fluid was examined by Drs. Drysdale, Peaslee, and others, who found no ovarian corpuscles in it; and by Dr. Hunter, who found in it ovarian corpuscles. On December 8th the patient was tapped. She had then inflammation of the sack, and blood-poisoning, and an attack of peritonitis from the use of the hypodermic syringe in drawing the fluid. Dr. Peaslee then changed his mind, and was equally balanced between the diagnosis of ovarian and fibro-cyst. The case was a desperate one, and, being satisfied that the patient could not live many days as she was, Dr. Emmet decided to operate. He found adhesions everywhere, and acute peritonitis existed at the time. There was a large quantity of fetid pus in one of the cysts. The tumor was removed with difficulty, and the operation lasted two hours, but all symptoms of blood-poisoning had disappeared by the time the patient recovered from the ether. This was due to the use of the carbolic-acid spray, under the charge of Dr. Weir. Lister's method was carried out in every detail, not only during the operation, but at every dressing afterward. The pulse and temperature became normal in a few days, and at the end of the eighth day the opening closed.

The second case reported by Dr. Emmet was one of chronic cystitis, in which an artificial fistula had been made, and had given relief; but it closed too soon, and the symptoms of cystitis returned. The urethra had then been dilated and ruptured, and there had been incontinence of urine, and the bladder had contracted. An operation had been performed by Dr. Emmet for forming an opening in the base of the bladder, but the patient died of uræmic poisoning after the use of the ether. The urine had been examined before the operation, but had not given evidence of kidney-disease.

Dr. Maxwell read a report on the *post-mortem*. Both kidneys were found extensively diseased. One ureter was occluded, and the other largely dilated.

Dr. Skene said Dr. Emmet's last case raised the very important question of the means of making the diagnosis of renal disease in connection with cystitis.

Dr. Gouley, a guest of the Society, on being asked his opinion on the subject, said he had found it almost impossible to make out renal disease in such cases. In two cases where he had performed cystotomy for chronic cystitis in the male, there had been no means of ascertaining the existence of advanced disease of the kidneys. Examination of the urine had revealed nothing.

Dr. Emmet said he wished to call attention to the dilatation of the urethra. More than ten years ago he had seen cases of rupture in dilating for stone. It had happened in his own hands, when he had been as careful as possible. The female bladder had no sphincter, and it was merely the dropping together of the folds that gave retentive power. If a cicatricial line passed through the folds, it caused incontinence Even if the accident occurred once in a hundred times, it wa a question whether it was right to run such a risk. It wa much easier to cut through the base of the bladder. He ha seen, within the last year, four or five cases where patients had been maimed by rupture of the urethra, and he knew of no means of relieving the condition.

Dr. **Skene** asked why, in Dr. Emmet's case, the vesico-vaginal fistula was made.

Dr. **Emmet** said, in order that he might, by operation, lengthen the urethra, like the spout of a tea-pot.

Dr. **Hanks** suggested that there might be a difference in the danger of dilating in different cases. In chronic cystitis it would be difficult to avoid rupture.

Dr. **Emmet** replied that the case he had related was the only one he knew of where the dilatation, followed by rupture, had been done for chronic cystitis. All the others had been done for making a diagnosis.

Dr. **Noeggerath** said it made a great difference whether, in dilatation, there was disease of the bladder or not. Where the bladder and urethra were healthy, if dilatation were not done too rapidly, or with too large instruments, he was convinced that it did no harm. The whole question of incontinence was not as simple as it appeared to be. He knew of one case where the entire urethra had been split and kept open for the purpose of performing a certain operation. The urethra did not heal up for two or three weeks, and still there was no incontinence of urine. The urine was not expelled with the usual force, but continence was perfect. There were cases where the anterior part of the urethra had been entirely destroyed by ulceration without producing incontinence. The lesion that caused incontinence must be one of some kind of sphincter of the bladder itself. He had no doubt Dr. Emmet had seen more cases than other practitioners, because they came to him for relief. He had dilated 75, or, perhaps, 100 times, and had seen incontinence lasting two, three, or four weeks. He knew of only one case where it had lasted longer; that was a hospital-case of chronic cystitis.

The exploration of the bladder and surrounding organs was of great importance; but, if incontinence of urine followed as often as would appear from Dr. Emmet's experience, it ought to be given up.

Dr. **Emmet** thought the term "sphincter" of the female bladder, as used by Dr. Noeggerath, should not go on the record without some explanation, since no sphincter existed.

Dr. Noeggerath said there was a sphincter in a physiological sense, but not in an anatomical one. He did not know whether Dr. Emmet had observed, as he had, the existence, in some cases, of a sharp circular edge, which closed round the finger in the neck of the bladder. He had noticed it only four or five times. Those might be the cases which it was dangerous to dilate.

Dr. Watts inquired if the ophthalmoscope might not be of use in determining the existence of Bright's disease.

Dr. Roosa, present as a guest, said there could scarcely be many cases of advanced Bright's disease without perceptible changes in the retinal circulation.

Dr. Skene asked if casts were not frequently found.

Dr. Gouley said there were many cases in which there were no casts. He asked Dr. Emmet in what proportion of cases he found incontinence follow dilatation.

Dr. Emmet said he had dilated in 11 cases, and there had been incontinence in 2. He had used Simon's dilators.

Dr. Noeggerath had had incontinence in 2 out of 75 cases.

Dr. Emmet wished to mention another point in his case. The cystitis had been cured, but too late, since the ureters had already become dilated, and the disease had extended to the kidneys.

Dr. Gouley related four cases in which he had dilated the female urethra without any consequent incontinence.

Dr. Noeggerath said that in a great many cases there was no trouble whatever after dilatation.

Dr. Emmet had no doubt the operation could be done safely in many cases; but if only 1 in 100 resulted unfavorably, it was a serious objection to the method.

Dr. Noeggerath thought it too soon to decide on the question finally. He did not think incontinence in 1 case in 100 should deter the profession from employing so valuable a means of diagnosis.

Dr. Emmet, in answer to a question from Dr. Skene, said he had satisfied himself that fissure of the bladder existed.

Dr. Gouley believed that, if such a condition existed, dilatation should be resorted to for its relief. It had been done in the male bladder, in France, and he had done and recommended it himself.

Dr. Emmet said he had opened the base of the bladder where there was no cystitis and no kidney-disease, because he had felt sure there was fissure of the neck of the bladder. He had demonstrated the existence of fissure by rolling the parts out with a tenaculum.

Dr. Skene alluded to the advantages of his endoscope in diagnosticating fissure of the neck of the bladder.

Dr. Gouley suggested that some limit might be determined as to the extent to which it was safe to dilate the female urethra.

Dr. Noeggerath thought that hardly practicable. A stone one inch in diameter had been removed from the female bladder by the urethra, and the operation had not been followed by incontinence.

Dr. Skene said, in regard to the treatment of fissures of the bladder, that he had tried dilatation, incision, and almost every local application, but had found the disease very intractable.

Dr. Emmet thought the formation of a vesico-vaginal fistula would perhaps succeed, by giving the diseased part perfect rest.

Dr. Skene believed that operation would eventually become the approved treatment for fissure, and that it would give better results than in cystitis.

Dr. Mundé thought there was sometimes a neuralgic condition which caused spasm of the neck of the bladder. He had seen and cured two such cases.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, February 27, 1878.

Dr. John C. Peters, President.

Enlarged Spleen; Leucocythæmia.—Dr. T. E. Satterthwaite presented, on behalf of a candidate, an enlarged spleen. The history furnished with the specimen was as follows: An unmarried woman, thirty-seven years of age, entered the Presbyterian Hospital January 23, 1877. She had been in good health until 18 months before admission, when she suffered from malarial fever, and noticed for the first time a tumor in the region of the spleen. It was slightly painful, and increased in size till she entered the hospital. The patient had two attacks of epistaxis, and found that there was a tendency to bleed whenever she was slightly cut. On examination in the hospital-ward, she was found to be anæmic, and suffering from bronchitis and palpitation of the heart. The abdomen was as large as if she had been in the sixth month of pregnancy. An examination of the tumor showed it to occupy the left side, and to present a notch at the umbilicus. It was slightly painful on pressure. The measurements were as follows:

Circumference of body at free border of ribs	36	inches.
" " umbilicus	38½	"
From xiphoid cartilage to left anterior superior spinous process	12	"
From xiphoid cartilage to right anterior superior spinous process	14½	"
From anterior spinous process to anterior spinous process	16½	"

A microscopical examination of the blood showed that there was one white to three red corpuscles. The patient was placed on a tonic treatment, and after a month the ratio was one white to two red corpuscles. Hypodermic injections of the extract of ergot were given, but without benefit. Prostration seemed to follow from their use, with palpitation of the heart and vertigo.

August 1st.—The patient has been treated with iron and quinine, iodine, phosphorus, and cod-liver oil, but there has been a steady decline. The blood showed an equal proportion of white and red corpuscles. The tumor slightly enlarged.

October 1st.—No improvement. Patient passed 85 ounces of urine, slightly albuminous, in 24 hours.

December 1st.—Liver slightly enlarged.

15th.—The increased size of spleen caused much discomfort. Ordered ammon. mur. ʒj every two hours.

January 1st.—Much improvement.

February 14th.—The patient is not improving. A consultation of the surgeons was called, to consider the question of removal of the spleen. It was decided adversely, on account of the depressed state of the patient.

17th.—Death of the patient.

Autopsy.—The operation of removal of the spleen was performed on the cadaver. An incision was made commencing four inches above the umbilicus, and extending four inches below. The hand was then introduced, and the spleen readily turned out, there being no adhesions. The pedicle of the spleen was four inches in circumference. The spleen weighed 10 pounds 7 ounces. The liver weighed 11 pounds 10 ounces.

Congenital Talipes Calcaneus; Arrest of Development.—Dr. V. P. Gibney presented to the Society a child two years of age, which was of interest from the similarity in some respects to a child recently presented by Dr. Putnam-Jacobi. The labor was natural, and there was no history of maternal impression. At birth, the right foot was bent on the anterior surface of the leg, to such an extent that the dorsal surface of the great toe formed a depression in the skin of the middle third of the leg. There was also an absence of the second metatarsal bone and second toe. The third and fourth toes were webbed. The mother of the child was able, by manipulation, to relieve the original position of the foot. At the time of presentation to the Society the condition was that of talipes valgus, with subluxation of some of the tarsal bones. There was also a dimple in the skin of the leg, the remains of the depression caused by the pressure of the great toe. The case is of interest from the relief of extreme talipes calcaneus, which was obtained by the manipulations of the mother; also as furnishing an explanation of the production of the cicatricial-like depressions found in cases of deformities at birth.

Spasm of the Glottis, due to Pressure on Right Recurrent Laryngeal Nerve by an Abscess, causing Death from Asphyxia.—Dr. W. T. Bull presented a specimen with the following history: C. O'C., twenty-five years of age, was brought to Chambers Street Hospital, February 16th, at 11.45 A. M. When first seen, he was walking with difficulty, supported by two men, coughing frequently, and expectorating very offensive bloody mucus, and gasping for breath. There was considerable cyanosis of face. The surface was cool; the pulse 100, and moderately full. The passage of air through the glottis or trachea was interfered with both on inspiration and expiration. The patient's struggles prevented satisfactory consultation, and percussion gave no marked dullness in any part of the chest. There was a trifling swelling of the neck externally, and pain on pressure over the larynx. The lower jaw was held so firmly that a screw-gag was necessary in order to introduce the finger to the base of the tongue. No swelling could be felt there. The epiglottis could not be reached. The voice was clear on entering the ward, but soon became hoarse and inaudible.

The only information to be obtained from the patient or his friends was, that for five days past he had had a cold, with pain in the back and chest, and during the 24 days previously to admission a cough, with brownish expectoration.

No definite diagnosis was made; but it was decided to perform tracheotomy in case antispasmodics were insufficient. Magendie's solution (♏xv) was given hypodermically, and 10 minutes later chloroform inhaled. The struggles of the patient ceased, but the obstruction to the passage of air was unrelieved; and, while instruments were being brought, respiration stopped entirely. Artificial respiration was resorted to, the tongue being drawn forward by a string passed through its tip. This was followed by gradual improvement. The air passed freely into the chest; respiration was regular, but shallow; the cyanosis disappeared. Pupils were contracted. Tinct. belladonna (♏v) was given hypodermically, and repeated after 15 minutes. Respiration became deeper; the surface of the body was warm; the pulse was 100, of good volume. It was thought that the immediate danger of asphyxia was past, and that the man was thoroughly under the influence of morphine. A quarter of an hour afterward there was a sudden interruption to inspiration, and respiration ceased at once. The pupils dilated, and the heart's action stopped a minute or two later.

At the autopsy, 24 hours after death, it was noted that the body was that of a well-nourished muscular man, with thick layer of subcutaneous fat. The heart was normal; the left ventricle contracted, but empty, the right containing a small, soft clot. There was marked congestion of both lungs, with slight œdema; on both sides old pleuritic adhesions. The mucous membrane of the larynx, trachea, and bronchial tubes was deeply congested, without any exudation. In the groove between the trachea and œsophagus, on the right side of the neck, and beneath the common carotid and subclavian arteries, was an abscess, originating apparently in the lymphatic glands. It formed a tumor three inches in length by one inch in diameter, extending upward as far as the middle of the right lobe of the thyroid gland, and downward to just below the bifurcation of the innominate artery. Its cavity contained healthy-looking but offensive pus. There was no encroachment on the walls of the trachea or œsophagus, but considerable thickening and infiltration of tissue toward the trachea. The pneumogastric nerve and large vessels were normal. The recurrent laryngeal nerve, after winding round the subclavian artery, was imbedded in the dense tissue forming the tracheal wall of the abscess for a distance of two and a half inches. Macroscopically it presented nothing abnormal. Other organs were healthy.

Dr. Bull said, furthermore, that he had never heard of a case similar to this; and Dr. Peabody, who had made a careful dissection of the preparation, after a rapid search through pathological literature, had been unable to find one. Still it seemed fair to regard it as analogous to fatal cases of spasm of the glottis produced by the pressure of small aneurisms on one recurrent laryngeal nerve, which are recorded by standard authors.

Dr. Briddon referred to a case which he had seen a number of years ago. He was sent for to attend a man on Dover Street, and, on his arrival, found the patient suffering from dyspnœa, which caused severe distress. He was sitting in a chair, and, when a spoon was placed in the mouth to depress the tongue, pus was noticed to well up at the base of the tongue, and the patient slid down from the chair to the floor, apparently dead.

The trachea was immediately opened, and after a time the patient gave a gasp, and eventually recovered. Dr. Briddon said that the case was one of abscess originating in the lymphatic glands. The insertion of the spoon caused its rupture into the pharynx and trachea.

Dr. L. A. SAYRE referred to a case of dyspnœa due to abscess of the neck, resulting from caries of the lower jaw. The abscess distended the neck so as to make it extend in a straight line from the jaw to the sternum. The dyspnœa was relieved on the evacuation of the abscess.

Dr. JOHN C. PETERS said the records of the Society showed that one-fourth of the cases of retropharyngeal abscess presented to the Society had an inflamed lymphatic gland as a starting-point.

Intraosseous Epulis.—Dr. L. A. STIMSON presented a bony tumor of the upper jaw, with the following history: A woman, aged forty, entered the Presbyterian Hospital February 13, 1878, having a tumor of the upper jaw, to the left of the median line. This made its appearance 11 weeks previously as a small lump on the gum, which grew rapidly, and was at times painful. The patient had, with the exception of the first and second molars, only the canine tooth on that side; and eight weeks after the tumor made its appearance the canine tooth was removed. This was followed by severe hæmorrhage, which at intervals recurred. When the tumor was examined, it was found to be above the margin of the upper lip, and sufficiently large to obliterate the canine fossa. It was globular in form, and extended from the median line to the first molar. The surface was smooth, and of a dark-red color. The tumor was firm and could not be reduced by pressure, and was painful only at its upper border. There were no enlarged glands in the neighborhood. It was decided to remove the growth, and for this purpose an incision was made by the side of the nose, extending downward around the ala to the median line, and then directly down through the lip. The flap was dissected up, and the dissection continued outward as far as the molar process of the superior maxilla. The bone was cut through in the median line, across the antrum from the nasal fossæ, and from the extremity of the latter incision directly downward to the second molar tooth. The bone was then bent upward, fracturing the palatal processes, and, after division of the mucous membrane of the palate, was removed. The posterior palatine artery was tied, and the bleeding from other vessels arrested by torsion and the actual cautery. The flap was then secured by sutures, and union by first intention occurred along the whole of the cutaneous incision. Section of the tumor showed it to be red and dry, with fibrous bands crossing it vertically. A microscopical examination showed the presence of fibrous tissue, numerous vessels, and giant cells. The tumor seemed to have its origin in the bone, and was of the class myeloplaxoma, and benignant in character. The points of diagnosis were the dark-red color, the location in the spongy part of the bone, and the absence of glandular enlargement and of pain.

Sarcoma of the Calf of the Leg.—Dr. STIMSON also presented a tumor occurring in the calf of the leg. It was removed from a woman thirty-seven years of age, who was admitted to the Presbyterian Hospital February 11, 1878. The patient had a tumor in the right gluteal region removed by Dr. A. C. Post during January, 1876. There was no recurrence in the cicatrix. The woman first noticed a lump on the inner side of the left leg three months before admission. This was painful, and grew rapidly, till it reached the size of an orange. The tumor was not adherent to the skin; it was movable, and did not fluctuate. The inguinal glands were enlarged to a slight extent. The patient walked with difficulty, due to the inability to bring the heel to the ground. On February 16th she was anæsthetized, and an incision made through the skin and tissues over the tumor, which was found to rest between the soleus and deep flexors, and to be attached to them and to the tibia. The tumor was soft and friable, and, after consultation with the other surgeons, it was deemed best to amputate. A long anterior flap was made, and the condyles were sawn through. The operation was performed under the antiseptic spray, and 11 days after the operation the wound was nearly healed. The tumor was four inches long by two and a half thick. It was soft and friable, and could not be separated from the muscular tissue. It was adherent to the deep fascia, and by it to the periosteum. The growth extended along the sheath of the posterior tibial artery, and was adherent to it. On section, the tumor was found to be made up of a soft and whitish central portion and a vascular peripheral portion, containing large arteries and veins. A microscopical examination proved it to be a specimen of round-cell sarcoma.

Carcinoma of the Pelvic Viscera.—Dr. A. C. POST presented a specimen of cancer of uterus and bladder, with the following history: The patient was a widow, forty-seven years of age, and was admitted to the Presbyterian Hospital October 2, 1876. The first sign of disease occurred three months before admission, when she had a free discharge of blood from the vagina, not fetid, and without pain. These hæmorrhages were noticed every few weeks, and lasted three days. The patient had passed the menopause three years before these uterine hæmorrhages manifested themselves. Before admission, severe pains manifested themselves in the sacral region and along the thighs. There was also dysuria. The patient stated that she had lost flesh for a month before entering the hospital. On examination, carcinoma of the cervix was detected. October 5th, the growth was scraped out, and considerable comfort was found after the operation. November 24th, the cavity of the uterus was scooped out by Simon's instrument. It was found that a fungous mass had extended upward from the cervix. The patient steadily declined, and during February had a severe hæmorrhage. The disease had extended so far by June, 1877, that the contour of the uterus could not be distinguished. The discharge from the vagina was very offensive. An examination of the thigh showed the veins to be distinct and hard. The patient gradually sank, and died October 14th, 1877.

Autopsy.—The pelvic viscera were matted together in a carcinomatous mass, and were attached to the pelvis, with the exception of the sacrum. The anterior part of the vagina and nearly the whole of the uterus were absent. A free communication existed between the bladder and vagina. The lumbar glands were infiltrated.

Removal of Lymphatic Glands.—Dr. POST also presented a specimen of enlarged lymphatic glands, which he had removed from the neck of a patient. Considerable care was required to avoid the great vessels of the neck.

Dr. VAN GIESEN, of Greenpoint, wished to know if the starting-point of the cancer was in the cervix. He had a case under observation, in which a large malignant tumor was situated on the posterior wall of the vagina, but it did not involve the cervix. The finger could be introduced, and a portion of healthy vagina discovered between the mass and cervix. It was so large as to offer a mechanical obstruction to the rectum. The patient was forty-five years of age, and had no history of syphilis. The pain was very severe.

Dr. POST said his case began in the cervix.

Dr. BRIDDON related the history of an interesting case, in which the disease began in the posterior wall of the vagina, and eventually involved the uterus. The growth involved the middle and posterior walls of the vagina, and was seen by Dr. Van Buren. It was removed, but returned in three years, and involved the uterus. In regard to the benefit of an operation on Dr. Van Giesen's case, Dr. Briddon thought that the presence of pain would indicate it.

Acute Miliary Tuberculosis.—Dr. BEVERLY ROBINSON presented specimens and history of a case that had been under his observation in the service of Charity Hospital. The patient was a convict in the penitentiary, and was first seen February 7, 1878. He was much prostrated; pulse 130; no paralysis. An examination showed dullness under the clavicles, with bronchial breathing and crepitant *râles*. There was also cough, with hoarseness of the voice. There was no previous history, and no record of temperature. The diagnosis made was broncho-pneumonia, with capillary bronchitis. The temperature was 100½° under the tongue. Tincture of digitalis was given freely. The patient died from exhaustion. At the *post-mortem* examination the lungs presented tubercles, occurring as clusters and as single granulations. Tubercles were found also in the capsule of the liver, in the intestines immediately beneath the peritoneum, and beneath the capsules of the spleen and kidneys. Tubercles the size of a pea were found beneath the meninges, and two tumors, each one as large as a walnut, in the brain-substance of the posterior hemispheres. There were no symptoms of cerebral disease during life.

Abortion.—Dr. Finnel presented a fœtus at six months, from a case of criminal abortion. The right side of the fœtus presented an extensive extravasation; and the question of interest, in a medico-legal point of view, was whether the abortionist had been the cause of the extravasations, by means of instruments used, or whether they resulted from the contractions of the uterus in parturition.

Morbus Coxæ; Exsection of Hip.—Dr. L. A. Sayre presented a portion of bone removed from a boy aged seven. The patient had sinuses around the joint for two years and nine months.

Bibliographical and Literary Notes.

Art. I.—*On Harelip and Cleft Palate.* By Francis Mason, F. R. C. S., Surgeon and Lecturer on Anatomy at St. Thomas's Hospital, Honorary Fellow of King's College, London, etc. London: J. & A. Churchill, 1877.

This volume comprises the articles on the above subjects contributed to the reports of St. Thomas's Hospital for 1875 and 1876, with additions derived from the subsequent experiences of the author. A twelve-years' service as assistant to the late Sir William Fergusson and the opportunities for observation afforded by a large London hospital lead us to expect a satisfactory treatise on these important conditions, and we must say that our anticipations have been realized in every respect. Prominence is given to the views and methods of British surgeons, especially Fergusson, but justice is done to the labors of others; and, where opinions differ, the autho expresses his own preference in a decided manner. The illustrations are ample and good, and the printing excellent. Brie reference may be made to the following salient points:

Among the causes of harelip, Mr. Mason mentions an i stance where the defect was clearly due to a maternal impression; and he confirms the statement of Fergusson, that one or both parents of the children often exhibit a partial defect in the jaw or teeth. The best time for operation is the second or third mouth; but in bad cases it may be done as soon after birth as possible, in order to save the child from the distressing effects of insufficient nourishment.

The chapters on Cleft Palate treat chiefly of congenital deficiencies. Of the acquired forms, the author believes, with Paget, that syphilis is not the cause in the majority of cases. Yet iodide of potash, in doses of five grains thrice daily, with iron, is beneficial, especially in cachectic persons who have ulcerations elsewhere. Damage is done by the introduction of foreign bodies—silk, wax, cork, etc.—to fill the aperture; but proper mechanical appliances (obturators of Weiss preferred) do good. Operations for this variety generally fail, while cauterization with nitrate of silver or nitric acid generally succeeds.

The best time for operation in the congenital form is the fifth or sixth year. To counteract the difficulty of nutrition in infants, the author has devised a rubber teat, protected by an oval plate of thin metal fitted to the roof of the mouth, which prevents the entrance of food into the nose. In general, the operation is the preferable mode of treatment, but good results have been obtained by the application of nitric acid twice weekly, especially to the angle of the cleft. Chloroform is the anæsthetic preferred, and Fergusson's gag the best. The division of the muscles need not be done as a preliminary step to the operation. It is, in the author's opinion, better to make it the final step. For clefts in the hard palate, Langenbeck's operation (uraniscoplasty) is recommended. Between this and Dieffenbach's operation (osteoplasty), preference is given in general to the former, as, after the latter, exfoliation not infrequently takes place from splintering of the bone in its division. To prevent this, Mason recommends drilling with a brad-awl a number of holes in a straight line through the palate, where the chisel is to be applied.

Undoubted improvement of the voice follows the operation. The nasal twang may be diminished by a procedure suggested by the author, designed to release the soft palate, which, after operation, "remains as a tight curtain between the mouth and posterior nares." A curved spatula is passed behind the soft palate, and on this the palate is cut completely through on either side. This is followed by puckering of the veil, especially toward the centre of its free edge; its movement is freer, and less air passes into the nose.

ART. II.—*Diseases of the Nervous System.* By JULIUS ALTHAUS, M. D., M. R. C. P., London. New York: G. P. Putnam's Sons, 1878.

THIS work treats of the national and special pathology of nervous diseases, as recorded in England and Wales by the Registrar-General, and observed by the author. From the annual reports of the former, nearly a quarter of a million cases have been studied, and several interesting facts have been brought out. Among others, we may mention this: that in England women are rather more prone to apoplexy than men. Diseases of the nervous system are classified as follows: I. General neuroses (nervosity! nevrosismus! etc.). II. Diseases of the brain and its membranes. III. Diseases of the spinal cord and its membranes. IV. Diseases of the cerebro-spinal nerves. V. Special forms of paralysis. VI. Special forms of anæsthesia. VII. Affections of the vaso-motor nerves. In general, we like this division. We see no reason, however, in regarding aphasia as a separate disease of the brain any more than hemiplegia, as the latter is just as purely a symptom as the former. Our author regards the physiology of the spinal cord as more complicated now than it was previous to recent investigations. Of course he only refers to the multitude of important facts which have been recently discovered, and does not intend to imply that the subject has not been simplified. Ignorance alone complicates. Under this head a good *résumé* is given of many of the observations of Brown-Séquard, Erb, Westphal, and others. Althau records himself as a believer in true motor-centres in th cortex of the brain, although he displays no acquaintanc with the arguments of the opponents of this theory. Th reader is referred to the writings of Dr. E. Dupuy for a number of able criticisms which have not yet been replied to by the disciples of the school of localization. We regret that Dr. Althaus has not made this subject one of deeper study, and that he has not given full play here to his skill as an electrologist, for which he is so justly celebrated. Why do all other irritants fail to evoke contractions? is a question which affords ample scope for reflection and experiment. Space will not permit us to examine in detail the succeeding chapters of this excellent work. The reader will recognize an old acquaintance in the author of "Electro-Therapeutics," and often prefer it to the more exhaustive treatises, such as that of Ziemssen. It is national pathology, however, and not that of the Western hemisphere. Peripheral nerve-diseases, and the diagnosis, prognosis, and treatment of the entire class of these maladies, will be considered in a subsequent volume, when, in view of other works of the kind soon to appear, a more extended notice will be called for.

ART. III.—*Pneumono-Dynamics.* By G. M. GARLAND, M. D., Assistant in Physiology, Medical Department Harvard University. New York: Hurd & Houghton, 1878.

THIS is a very interesting treatise on the physical phenomena of pleuritic effusions, based on a series of careful experiments. The object of the essay, the author tells us, is "to give a description of the true curve of flatness, to teach the proper way to search for it, to contribute certain experiments which seem to throw some light on the origin of the curve, and, finally, to discuss the diagnostic value of this much-disputed symptom." Before advancing his own arguments, the prevailing views on the subject of effusions are thoroughly reviewed and criticised. Then, after describing minutely his own experiments, and the results obtained by the use of models, he proceeds in the most elaborate manner to demonstrate the fact on which he lays the greatest stress—that an effusion does not push the lung before it, but that the lung, by virtue of its elasticity and retractility, acts as the piston of a pump, and supports the entire body of the effusion, together with the diaphragm. This condition exists until the retractile power of the lung is exhausted, and only when that point is reached can there be either depression of the diaphragm or obliteration of the intercostal spaces. As a result of this reasoning, it follows that the heart is not pushed out of place by an ordinary effusion, but is merely drawn over by the retractile power of the opposite lung. The author does not believe that the friction-sounds heard in the early stages of pleurisy cease because the lateral pleural surfaces are separated by the effusion, but simply because the respiratory muscles of the affected side are not strong enough, or active enough, to produce the sounds.

We recommend all who are interested in the subject to read the work carefully for themselves. It contains much that is original, and the author is entitled to the highest praise for the lucid manner in which he has presented his solution of a difficult problem.

ART. IV.—*Internal Urethrotomy, with its Modern Improvements.* By EDWARD LUND, F. R. C. S., Surgeon to the Manchester Royal Infirmary, and Professor of Surgery in the Owens College. London: J. & A. Churchill, 1877.

MR. LUND employs the urethrotome of M. Teevan, which consists of a conductor similar to Maisonneuve's, with a fixed shield equal in diameter to a No. 12 English sound, and a sliding blade that cuts from before backward. The tip of the conductor is tunneled, after the plan of Gouley's instruments. He gives plain and full directions for the use of the filiform whalebone bougies, and demonstrates his skill in their use by the narration of the cure of a case of impassable multiple strictures with perineal fistulæ, in a man forty-five years of age. In the preliminary treatment of difficult cases he lays stress on rest in bed and the use of aperients, and resort to aspir tion if necessary. After the operation, he introduces a No. 1 sound (preferring the steel "bougie à ventre" of M. Teevan "or, if there is any doubt as to its passing readily, one of two sizes smaller." This is repeated after an interval of 5 or days, then for three times at intervals of a week, then after 14, and again after 28 days.

Internal urethrotomy, in the author's opinion, is most useful in cases of contractile stricture, and those in which dilatation, which will cure most recent cases, has failed. To prevent urethral fever, he uses a suppository of morphia immediately after operating, and quinine with dilute sulphuric acid six hours later. The instruments are to be oiled with a one-twentieth solution of carbolic acid in olive oil, and all exposure to cold scrupulously avoided.

The essay contains some valuable remarks on the etiology and pathology of strictures, and is an instructive contribution to urethral surgery.

ART. V.—*Lessons in Laryngoscopy, including Rhinoscopy, and the Diagnosis and Treatment of Diseases of the Throat.* By PROSSER JAMES, M. D., M. R. C. P., Lecturer on Materia Medica and Therapeutics at the London Hospital, Physician to the Hospital for Diseases of the Throat, etc., etc. Second Edition. Illustrated with Colored Plates. London: Baillière, Tindall & Cox, 1878.

THIS is a useful elementary manual, and has been for several years before the profession. The only change in the present edition is in a series of new colored plates. With the exception of these plates, the illustrations are for the most part very coarsely executed. The text of the work has not been changed.

ART. VI.—*A Hand-Book of Volumetric Analysis. Designed for the Use of Classes in Colleges and Technical Schools.* BY EDWARD HART, S. B., Fellow of Chemistry in the Johns Hopkins University. New York: John Wiley & Son.

THIS is an excellent hand-book, describing all the most recent methods of analysis. Part I. contains directions for the selection of apparatus, correction of errors, preparation of solutions, etc. Part II. is devoted to the methods of estimating the elements and their more important compounds. Part III. contains a few cases of the application of the methods previously described.

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Mortuary Experience of the Mutual Life Insurance Company of New York; with Tabulated Reports, and an Analysis of the Causes of Death. By G. S. Winston, M. D., W. R. Gillette, M. D., and E. J. Marsh, M. D. Vol. II. New York: Printed by Order of the Board of Trustees, 1877.

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Reports on the Progress of Medicine.

REPORT ON LARYNGOLOGY.

No. XIII.

BY GEORGE M. LEFFERTS, M. D.,

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1. Repeated clinical observation has probably convinced all, that many cases of laryngeal tuberculosis are met with in which marked hoarseness is a prominent symptom, but in which an examination with the laryngoscope, or of the larynx, upon *post mortem*, reveals no palpable cause in the vocal cords; or, at best, such slight lesions, that it is a matter of surprise that such a grade of aphonia could have existed. Fränkel has endeavored to solve this question by turning his attention to the muscular apparatus of the larynx, and subjecting all its individual parts in such cases to rigid microscopical inspection. As a result, he has found constant appearances or changes in the laryngeal muscles of tubercular patients—changes (which he describes and figures in detail) which primarily affect the contractile tissue and the *perimysium internum;* secondarily, the muscle corpuscles, without the sarcolemma becoming involved in the process. The original article can be recommended to those who are interested in the details of the question.

3. Taeter and Krishaber recommend the following treatment in œdematous laryngitis: If it is markedly inflammatory, antiphlogistic treatment should be practised; one or two general bleedings, and wet cupping on the neck, will give considerable relief, diminishing the inflammation, and lessening the engorgement of the tissues. By means of a spray-apparatus, water impregnated with tannin or alum may be applied to the back of the throat. In the absence of a spray-producer, a simple irrigator filled with astringent fluid may be used. Recourse may also be had to cauterization with nitrate of silver, insufflations of tannin or alum, and scarifications and division of the ary-epiglottic folds. These two last methods are somewhat difficult to practise, but often, under the influence of spray-irrigation and local bleedings, the inflammation diminishes and disappears. When the œdema of the glottis is due to tuberculosis or cancer, art is powerless against the diathesis and the laryngitis. Nevertheless, we may have recourse to cutaneous revulsion, emetics, and purgatives, unless the progress of the disease be too rapid and the patient too much reduced. In the œdema of the glottis, caused by necrosis, the last resource is tracheotomy, which is often only a palliative; but it is important that it should be performed before the patient is too weak, or asphyxia has commenced.

5. Klemm claims that the epiglottis is more generally and more seriously

affected in syphilis than is commonly supposed; and although it is less frequently involved than either the pharynx or the mouth, or especially the larynx itself, still, in many cases it is entirely overlooked, because its condition gives rise to no symptoms which lead to a laryngoscopic examination, or its prominent one—pain in deglutition—is ascribed to other causes. Syphilis of other parts of the larynx declares itself early in the disease by hoarseness, cough, etc., and attracts the physician's attention; but syphilis of the epiglottis not unfrequently passes unnoticed by the patient, so long as the disease remains localized. It can therefore make much progress before it receives the attention that it demands, and he recommends most strongly that a laryngoscopic examination should be made in every syphilitic case that complains of pain in swallowing, even though there be no hoarseness, for otherwise ulceration of the epiglottis can be easily overlooked. Several forms of the affection are described by the author, and some are illustrated by drawings. In general, he states that the epiglottis is alone affected but seldom; that, sooner or later, the disease will seize upon it; that changes in its configuration are common; that the commonest and most important symptom is pain in deglutition, much less marked, however, than is met with in laryngeal tuberculosis, and is a symptom whose cause, whether pharyngeal or laryngeal, needs to be differentiated. If the latter, pain will be less than in the former. The period of the commencement of the epiglottic affection and its duration vary within the widest limits. Rarely does it appear within the early years of the constitutional disease. Usually the patient has long suffered from syphilis, and three to six years after the primary infection will elapse; it belongs to the later symptoms of the disease, and has their general characteristics—a slow progression, and resistance to remedial agents. Mistakes in diagnosis can occur in spite of the most careful examinations. A syphilitic epiglottis can easily be mistaken for cancer, especially when it is much swollen and ulcerated. In such a case, the clinical history of the patient, and the presence of other evidences of syphilis in the pharynx, larynx, on the skin, etc., will be of great assistance. Tuberculosis of the organ presents even greater difficulties. As a rule, the swelling in tuberculosis does not reach such a grade as in syphilis, and the granulations are flatter. Moreover, an examination of the lungs is conclusive. The emaciation, loss of strength, cough, and expectoration, may be very deceptive, as is proved by one of the cases whose history is appended to the article, which turned out to be syphilis, and not tuberculosis of the larynx.

6. In Dr. Fox's peculiar case, there was a slight sound on inspiration, somewhat like an eructation, but evidently spasmodic and involuntary. This sound increased in intensity day by day, until it became most distressing, sometimes resembling the clucking of a hen, sometimes the noise made by a turkey, and eventually it became like the scream of a peacock. It ceased during sleep, but sleep was very difficult. Henbane had been found the best hypnotic.

On examination, the upper part of the abdomen was seen to be very prominent; the respiration was rather forced, and wholly thoracic; the diaphragm seemed to be completely inert, and the doctor considered that the prominence and dullness of the upper part of the abdomen were due to the alteration of the position of the liver and other organs, caused by this condition of the diaphragm. The respiration was very noisy, both in inspiration and expiration, and simulated a peacock's cry pretty closely. It never ceased for an instant, except during sleep. Swallowing was rather difficult, especially of solids. His general health was good. Sensory and motor powers in the limbs were perfect.

The only previous history that seemed to bear upon the causation of these symptoms was that, nearly a year before his present illness began, he had had a severe blow on the cervical region of the spine. Fox's belief was that the boy was suffering from paresis of the phrenic nerves and irritation of the recurrent laryngeal, the results of an irritative condition of the cervical cord, induced by the blow.

Under gelsemium, and then strychnia, with faradization used with one pole over the cervical spine and the other along the upper part of the epigastrium, the diaphragm in about two months' time began to act slightly, and, after three months, abdominal respiration was restored. The noisy respiration improved in about six months' time, and ceased later altogether. While he was getting better in this respect, the peacock's cry could always be induced by any loud, sudden noise, or, indeed, by anything that caused a jar.

11. Browne says that evidence that the tuberculous diathesis influences a local laryngeal inflammation in a manner eminently characteristic, and at a period long prior to the discovery of equally well-marked symptoms in the lungs, is a fact which the daily observation of those engaged in laryngeal practice establishes as incontrovertible.

Whether or not there be tubercle actually developed in the larynx, or what, indeed, is the nature of tubercle wherever developed, he does not presume, and, indeed, does not care, to decide. Seeing, however, that tuberculosis is a disease primarily manifesting itself more especially in the respiratory organs; seeing that catarrh is one of the most frequent excitants to that disease, and that many catarrhal inflammations of the lungs commence in the larynx, it is at least fair to infer that, in those cases in which the eye reveals what has come to be recognized as tuberculous laryngitis, before the ear detects the presence of tubercle in the lungs, the disease has primarily attacked the former organ. Not only so, but noting also that the morbid changes in the larynx, as physically evidenced in every stage, are quite different from those of simple catarrhal, and of syphilitic, to say nothing of exanthematous and other phlegmonous inflammations, it is not unreasonable to suggest that the factors are also of an equally distinctive character. He considers it, therefore, as surprising that we should be told, with reference to laryngeal phthisis, on the one hand, that "tubercle appears to play a very secondary part, if any part at all," in its production (Mackenzie); and on the other, "that neither the catarrh nor the ulceration of phthisical subjects presents any characteristic signs by which it could be recognized as such, [and that] the attempts made to establish pathognomonic peculiarities cannot be said to have succeeded" (Ziemssen), and prefers to adopt the view of Virchow, who recommends the larynx as the most appropriate place for the study of true tubercle.

General treatment, he says, must differ in no essential respect from that necessary for phthisis and tuberculosis generally, however and whenever manifested. Bismuth and bromide of potassium, given internally, will be found of great service in relieving irritability of the parts.

Local treatment consists in steam-inhalations mainly. Spray applications are of but little use. Scarification is of most doubtful propriety. Greater local benefit will be found in the use of the brush than by inhaling. The most comforting solution is that of chloride of zinc, 10 to 20 grains to an ounce of water. Oil and undiluted glycerine he does not recommend. Solutions of nitrate of silver he condemns. Insufflations of bismuth, gum, and morphia, are useful.

In regard to the operation of tracheotomy, he says that it was not unfrequently performed, in pre-laryngoscopic times, in patients who were the subjects of laryngeal phthisis, and that for this there was the excuse of ignorance of the actual local condition. But the same measure has even been adopted by practitioners who, using the laryngoscope, should have been aware of the futility of such a procedure. It should be borne in mind that, in this disease, the whole mucous membrane is most sensitive to irritation, and is strongly disposed to ulceration, and that the cartilages of the larynx and trachea are, if not actually degenerated, most prone, with the least aggravation, to caries. It is therefore extremely doubtful whether the presence of a tracheotomy-tube does not, in such a case, actually increase the embarrassment of both respiration and deglutition. At the most, it can but prolong life a few days or weeks, with but little, if any, amelioration of distressing symptoms. It therefore behooves the surgeon, when such a question arises, to thoroughly explain these facts to the patient, or to his nearest relatives, and to refrain from urging, or even recommending, operative measures.

16. An interesting discussion upon Foulis's case of extirpation of the larynx was held at a recent meeting of the Medical Society of London, and was participated in by such authorities as Mackenzie, Lister, and Browne. Their views of the indications for the operation, and its advisability, will be found in the report of the meeting. The patient was present, and the "voice-tube" now worn by him was described by Dr. Foulis. The ingenious instrument is the invention of Dr. Levine, and was constructed independently of Gussenbauer's instrument, upon which this is a decided improvement. It is of the form of a tracheotomy-tube, with a vertical tube adapted to the horizontal part. The uppermost tube passes upward to the epiglottis, the lower tube being fitted into the trachea; a vibrating reed is inserted into the lower tube. (In Gussenbauer's instrument the reed is contained in a box connected with the vertical tube.) The reed can be introduced by the patient himself, and is made of a variety of materials—e. g., German silver, vulcanite, ivory, cane, box-wood, etc.—the timbre or quality of the note produced varying with the material of which the reed is constructed; showing that the quality of the voice depends in part upon the elasticity of the vocal cords. The pitch of the note is lowered in passing through the oral cavity.

With a German-silver reed, the vowel sounds are articulated without any variation in pitch. When a vulcanite reed is substituted, the result is a considerable difference in the note. The voice produced is, of course, a monotone, and, in order to shout, reeds of some thickness have to be employed, while for high notes a reed of horn is used. Pitch varies as the mouth is open or shut.

In the *Lancet* of January 26th is a very interesting description of both of the tubes above alluded to, with wood-cuts, and the method of introducing and wearing them; likewise an account of various experiments which have been carried out with the aid of the artificial larynx. The former notice of the case (Report No. XII.) carried it forward to the thirteenth day after the operation. Four months have now elapsed since the larynx was removed, and the patient has returned to his home in a satisfactory state.

19. Within five years Gerhardt has seen 20 cases of hysterical paralysis of the vocal cords, and their study and comparison have led him to several conclusions regarding the affection that are not without interest.

Fourteen of the cases were between the ages of fifteen and twenty-five, and 6 between twenty-five and forty; in one case the disease appeared in the ninth year. The majority of the patients had suffered from various complaints; several from chlorosis, rheumatism, and various inflammations of the throat. In just one-half, the cause of the aphonia was ascribed to exposure. A careful analysis of symptoms is given in the original article, among which are certain that can be regarded as diagnostic: a cough—of force and timbre—coexisting with an absolute loss of speech, marked anæsthesia of the laryngeal parts, and preservation of contractile power under electricity. The article is an interesting one.

22. A few general remarks, based upon the exhibition of four specimens, illustrated with drawings and microscopic preparations: 1. Primary cancer of the tonsil. 2. Cancer of the tongue, invading the tonsil (living patient). 3. Pharyngo-laryngeal cancer (living patient). 4. Primary cancer of the larynx.

23. Dr. Eyselein recently administered 45 grains of jaborandi to a lady who was suffering from hoarseness and pain in the neck, due to a cold. Great general distress and extreme prostration followed. He remarks that the effect on the hoarseness was all that could be desired, but it was attained at the cost of very great discomfort.

26. Duret, in the course of a review of M. Isambert's work on "Syphilitic Laryngitis," suggests the following methods of treatment: The general treatment should consist in protiodide of mercury in pills (¼ to ⅛ grain three times a day), or bichloride in solution. Should the affection have passed the secondary stage, iodide of potassium may be employed, or, in stubborn cases, the "mixed treatment." Tonics—iron, quinine, etc.—are usually called for. The patient should carefully avoid catching cold, and should avoid the use of tobacco and alcoholic liquors. Complete repose on the part of the organ itself is absolutely essential. The local treatment is of great importance. In the early stages, when there is only congestion or superficial ulceration, it should consist of insufflations of powdered alum, tannin, nitrate of silver, or, better still, spray of carbolic-acid solution, or solutions of alum, acetic acid, sulphate of zinc, etc. When the laryngoscope shows ulceration, the local treatment should be more precise and energetic. Cauterization at the seat of the ulceration may be practised by means of a small sponge moistened with tincture of iodine, solution of nitrate of silver, or of sulphate of copper, 1 to 30; of alum, 2 to 30; of sulphate of zinc, 1 to 100. These substances are preferably to be dissolved in pure glycerine; the crayon of nitrate of silver, or sulphate of copper, may also be employed. Experience has shown that excessive inflammation and œdema of the glottis are not to be feared with this treatment. Isambert has obtained excellent results in obstinate cases by the use of chromic acid (1 to 8 and 1 to 5), which modifies the pathological tissues advantageously. When necrosis of the cartilages sets in, a practised surgeon may sometimes succeed in preventing extension of the injury by cauterizing the diseased points by means of the galvano-cautery. Dr. Masson, in his thesis (Paris, 1875), has given the indications for tracheotomy with great exactitude. The surgeon may be called upon to perform this operation on account of asphyxia from œdema of the glottis, gummy tumor, or vegetations obliterating the air-passages, abscess, inflammatory swelling, or obstruction by loosened portions of necrosed cartilage.

When asphyxia comes on progressively, Isambert recommends cauterizations by chromic acid (1 to 8), thus crisping the swollen tissues, giving access to the air, and sometimes influencing the disease favorably at the same time. He reports two cases cured in this way. The patient must, however, be carefully watched, and, if relief be not gained, it will be necessary to operate. When the progress of the asphyxia is sudden, tracheotomy is to be performed at once, even when the patient is *in extremis.* M. Trélat reports 76 recoveries in 100 cases of tracheotomy in œdema of the glottis from syphilitic laryngitis.

28. The following discussion as to the advisability of the performance of tracheotomy in tubercular disease of the larynx, and its immediate indications, will be found of interest, as it pertains to a question upon which there is a decided difference of opinion. At a recent meeting of the Pathological Society, Dr. Ripley presented a patient upon whom he had per-

formed tracheotomy for œdema of the larynx, resulting from tubercular disease. The patient was admitted to St. Francis's Hospital suffering from extreme dyspnœa. The history obtained was as follows:

E. F., aged twenty-five. Family history good. Had chills and fever 18 months previously, which was followed by a persistent cough. Nine months before admission considerable hoarseness was noticed. There was also loss of strength. The patient complained latterly of pain in the pharynx when swallowing. Last Thanksgiving-day had an attack of dyspnœa, which nearly proved fatal. When he was admitted to hospital the dyspnœa was very marked, and it was considered advisable to perform tracheotomy. Chloroform was administered, but before the trachea was opened the patient showed signs of cardiac syncope. The administration of the anæsthetic was then stopped and the operation completed. Following the operation there was entire relief of the dyspnœa. The patient was examined by Dr. Elsberg six hours after the operation, when it was found that there was complete closure of the larynx. Dr. Ripley said that there could be no doubt that the operation relieved the dyspnœa and prolonged life. There was but little to hope for in the way of cure, as the patient was in the third stage of phthisis.

Dr. Robinson said that the case was interesting and instructive. He had at a previous meeting suggested the performance of tracheotomy, to relieve the larynx and allow of rest, in cases of tubercular and syphilitic disease of that organ.

Dr. Van Dusen wished to know the opinion of the Society in regard to the frequency of cases of œdema of larynx in which the operation of tracheotomy would be indicated. He referred to cases in which the œdema was a complication of chronic disease. He had a case under observation where relief was obtained by the use of steam-inhalations. He was of the opinion that it was very rare for cases to require operative interference.

Dr. Elsberg said that he had operated five or six times, and had advised in about 20 other cases the performance of the operation. Relief of the dyspnœa followed the operation, but it was not to be supposed that any permanent good would result in the progress of the tuberculosis. He considered the operation as justifiable, to avert the immediate danger of death. The operation would seem to be specially indicated in cases where there was progressively increasing dyspnœa rather than in acute attacks.

Dr. Janeway said that it must be conceded that cases of tubercular disease of the larynx requiring operative interference were rare, for the reason that in large hospitals, where there were a great many such cases, tracheotomy was a rare operation. He had seen, many years ago, in private practice, a man suffering from phthisis who developed œdema of the larynx with great dyspnœa. The operation was strongly advised as the only means of preventing death. The patient, however, persistently refused. On the following morning the dyspnœa had in great part disappeared.

29. McSherry's paper is based upon the history of a case of laryngeal stenosis, in connection with which he details the method of Schrötter, of Vienna, in treating, by systematic and progressive dilatation, cases of this class. It is mainly a translation of Schrötter's views and description, as communicated by him in his *Jahresbericht* for 1871–'73. To those who are unable to read the account in the original, McSherry's paper will
of interest.

80. Some of the practical points in Lennox Browne's excellent artic
are as follows:

The larynx is affected in secondary syphilis at any time from s
months to two years after exposure to the primary infection. It m
occur either as an extension from the pharynx, or, as is more common

the case, it arises at a somewhat later period, and independently of the pharyngeal manifestation. The truth of this last suggestion is evidenced by the facts that the larynx is often first affected after the disease in the pharynx has been cured, or without the latter ever having suffered, and also that the characteristics of secondary inflammation in the larynx are by no means so differentially distinctive as are those in the fauces.

Secondary syphilis in the pharynx is almost invariably accompanied by cutaneous manifestations; whereas, if the latter have ever been noticed, they will often have disappeared months before the larynx is affected.

Mucous deposit, also, is by no means a natural product of syphilitic inflammation occurring in the larynx, nor is such inflammation or such deposit invariably, or indeed usually, symmetrical. Loss of tissue is rare, ulceration seldom extending beyond erosion of the epithelial layers, which occurs at points likely to be subjected to irritation from the passage of food or from mutual contact.

Condylomata occur in some situations, and they are probably not so uncommon as Morell-Mackenzie (Reynolds's "System of Medicine") has estimated (4 per cent.). The author's experience would lead him to say about 10 per cent. as the proportion, but possibly he gives a longer limit to the secondary stage of the laryngeal disease.

Contrary also to the same authority, the author has seen not a few cases in which condylomata have developed into formations which were, to all intents and purposes, warty growths; nor can he agree that such formations have in the larynx, any more than upon the skin, where *irritation is constant*, a tendency to spontaneous subsidence. All secondary syphilitic affections of the larynx are characterized, as are those associated with the same dyscrasia in other organs, by rapid amelioration under appropriate treatment, but by an equally strong tendency to relapse. This fact is often of great diagnostic value in doubtful cases of chronic laryngitis.

TREATMENT.—*General.*—A mild mercurial course is naturally indicated, and is most serviceable. The Turkish bath, followed by the calomel vapor-bath, or by moderate mercurial inunction, is of great value both for its general and local effects. Whenever condylomata appear, or there is any symptom of ulceration, iodide of potassium, with or without mercury, is indicated.

Local.—Stimulating inhalations of creosote, benzole, or pine-oil, as recommended in simple chronic laryngitis, are of the first importance. External applications of tincture of iodine, or mercurial ointment with iodine or belladonna, have a decided local beneficial effect.

Topical applications to the larynx are of even greater value than in simple chronic congestion, and must be pursued with proportionately greater regularity and perseverance, even after the inflammation has disappeared from the vocal cords. Allusion has already been made to the absence of warrant for the traditional preference of the profession for nitrate of silver in laryngeal disease. This remedy should only be applied when there is actual ulceration. Solutions of chloride of zinc (10 to 80 grains to the ounce) and of sulphate of copper (5 to 20 grains) are most useful as local applications in secondary inflammations, alternation of the solutions frequently having a great effect in promoting the cure. In very obstinate cases, spa-treatment at Aix-la-Chapelle or Bagnères de Luchon may with advantage be prescribed.

Hygienic and Dietetic.—The indications are, to give rest to the voice, and to avoid exposure to all catarrhal or irritative influences.

Tertiary syphilis is characterized by ulceration of the most destructive character, causing permanent loss of tissue, followed by resulting cicatrices, which may either produce great narrowing of the larynx, or may be accompanied by new deposit having the same effect.

It occurs in the throat as one of the latest manifestations of the disease, and is often seen 20 or 30 years, or even at a still later period, after the primary infection. It may commence as an extension of the disease from the fauces, in which case it very seldom indeed advances beyond the epiglottis; and, under these circumstances, there is neither much thickening nor displacement, nor any great amount of trouble in the performance of function.

From the velum, or posterior wall of the pharynx, the disease very seldom descends into the larynx, and cases may frequently be seen in which the whole posterior wall of the pharynx is the seat of deep ulceration, extending upward into the naso-pharynx, but in which the larynx is absolutely free from any sign of ulceration, and in which, although articulation is affected, the tone-quality of the voice is unaltered. These remarks hold good also with respect to congenital syphilis, which it is not common to find in the larynx. The author, however, remembers a case seen some years ago, in which it appeared possible to believe that the patient, a young man of twenty-two or twenty-three, was the subject both of congenital syphilis and of the same disease in the acquired form. His father was under treatment for tertiary laryngeal manifestations; and the younger man, with characteristic teeth and physiognomy, and with cloudy corneæ, had been under medical care for palatal ulceration; acknowledged to the primary infection, had the scar of a chancre, and some years after his first appearance as a patient he suffered from syphilitic invasion of the larynx.

It is not easy to affirm that the ulcerative process is always the result of degeneration of gummatous deposit, since the patient frequently does not come under observation until loss of tissue has already taken place; but, from the appearance of those ulcers which are the undoubted sequel of gummata, it seems probable that such is the usual origin of laryngeal tertiary ulceration. The epiglottis, subjected as it is to greater irritation than any other part of the larynx, is the portion most frequently attacked. But it cannot be said that any one part is more prone than the rest to the destructive process.

TREATMENT.—*General.*—During the active stage of ulceration, the administration of the iodides of potassium or sodium is in the highest degree beneficial. Seeing, also, that the majority of the worst cases occur in very poorly-fed persons, cod-liver oil and iodide of iron are of great therapeutic value. In other cases, the iodide may be occasionally remitted, and cinchona with ammonia or acid substituted. When the ulcerations are healed, the preparations of mercury must be given for a lengthened period, as prophylactic against future attacks.

Local.—There is no better topical remedy for syphilitic ulcers than nitrate of silver, which must be applied *daily* with the aid of the laryngoscope. If there is much coating of secretion over the ulcer, it should be first removed by means of a soft, moist brush, or a piece of cotton-wool in a suitable holder. When the ulceration is of the epiglottis, the galvano-cautery acts more rapidly in arresting the destructive process than even nitrate of silver.

Laryngeal œdema must be met by the prompt performance of tracheotomy; and the same step may be necessary, at least as preliminary later measures, if stenosis becomes extreme.

With respect to the further treatment of this last condition, it ca not be said that any great success has so far followed attempts to remo the cicatricial web, or to dilate the narrowed orifice by bougies or ana gous measures. It is better, therefore, to warn the patient on wh tracheotomy has been necessary, on account of such a condition, that will in all probability be obliged to retain the canula for the rest of his life. The tube should always be inserted in the lowest point possible in the trachea, and should on no account be removed, however favorable the symptoms may appear, unless laryngoscopic examinations give evidence that the physical obstruction is lessened.

At a very early period after tracheotomy, it will be well to make an opening in the superior surface of the canula, and to allow the patient to wear a pea-valve, so as to favor a natural process of dilatation by means of the current of air.

With reference to other operative procedures, the author would not recommend—at any rate for this disease—either resection of the anterior portion of the larynx, as practised by Heine, or excision of the entire vocal organ, as performed by Billroth and others.

33. The question as to the truly tubercular or non-tubercular nature of the affection called consumption of the larynx, or tubercular laryngitis, which at the present time is exciting so much discussion, will render the report of a microscopical committee of the New York Pathological Society, on a larynx removed from a patient in whom, on *post-mortem* examination, was found undoubted miliary tuberculosis of the lungs, and who had presented all the laryngoscopic appearances which characterize the so-called tubercular laryngitis, of much interest:

"To external appearance, there was no decided lesion of the larynx, more than that the surface of the mucous membrane was rough, especially at the base of the epiglottis, and from this point down to and over the lower vocal cords. There was no decided elevation of the mucous membrane, indicative of miliary tubercular granulations. On section of the tissue between the epiglottis and upper margin of the upper vocal cord, a number of yellow, circular spots were noticed in the submucous tissue. They looked to the eye like cheesy nodules, and varied in size from a pin's-head to a No. 2 shot. No miliary granulations were seen anywhere. Examined microscopically, it was seen that these spots had undergone granular and fatty change, as is seen in the so-called 'yellow granulations.' The submucous tissue was in places densely infiltrated with lymphoid corpuscles, chiefly about the mucous glands, but neither adenoid tissue nor giant-cells were seen. The epithelium of the surface showed the characteristic cylindrical form that occurs throughout almost the whole of the larynx, and was intact, except in a few places, but never wholly gone. In these places the epithelium was low, deformed, and did not take the coloring matter. The elongated papillæ seen on the true vocal cords and in the posterior foldings of the mucous membrane, near the arytenoid cartilages, were normal."

35. Dr. Beveridge states that for foreign bodies in the throat, such as a piece of meat, etc., a simple mode of relief is to blow forcibly into the ear. This excites powerful reflex action, during which the foreign body is expelled from the trachea. The plan is so easy of execution, that, if there is anything in it, it ought to be generally known and applied.

CONTRIBUTED BY DRS. EDWARD FRANKEL AND W. T. BULL.

SURGERY.

On Diagnosis of Fracture of the Neck of the Femur.—Dr. Cianciosi calls attention to a sign already indicated by Monteggia, but neglected by authors, namely: That in the normal condition the great trochanter projects five or six millimetres outside of the crest of the ilium, and is situated on a level with the pubis. In cases of fracture of the neck this projection will be less, and the great trochanter will be found at a lower level. In experimenting on dead subjects, by making an incision 27 millimetres over the superior margin of the great trochanter down to the neck of the bone, and breaking the bone with hammer and chisel, 15 cases of intracapsular and 8 of extra-capsular fracture were produced. From these results, the author maintains: 1. The cause of external rotation (adduction) is attributable to weakening of the adductors, and inability to counterbalance the antagonistic action of the abductors. 2. Shortening is due to greater or lesser lesion of the articular capsule (as was proved by the production of more or less extensive laceration), and not to muscular traction (glutæus minimus). 3. The projection of the great trochanter not only is less prominent than normally, but is always found at a lower level. According to the author, this latter is the pathognomonic sign of fracture of the neck of the femur. The method of Jacquet (compression over the pelvis and great trochanters) has given the best results in treatment. —*Gaz. Méd. de Paris*, 36, 1877. E. F.

Dislocation of the Clavicle, Forward and Upward.—Dr. Vanverts reports a case of this variety which has not yet been described. The majority of authors deny that the internal extremity of the clavicle can be dislocated upward and forward. Sanson, Nélaton, Morel-Lavallée, Potaillon, simply state that up to the present time it has not been observed. The patient, a vigorous man of sixty-nine years, while standing on a ladder in a very hot room, was seized with vertigo, and fell against a stove, striking the left side of his chest. Much pleurodynia followed, and the least movement of the arm caused intense pain. There was a small tumor in the sterno-clavicular region. On examining this swelling, it was found that the internal extremity of the clavicle presented a marked dislocation forward. The patient being very thin, the whole extent of the bone could be examined, and it appeared that the interarticular cartilage had followed the dislocated head, as there was a certain mobility different from fracture. But what was most striking was the upward displacement, amounting from two and a half to three centimetres. Above it, and to the left, could be felt the cleido-mastoid, like a twisted cord. The face was turned slightly to the right, and the head inclined toward the left shoulder. Contrary to the affirmation of authors, the dislocation was irreducible, but it is necessary to state that anæsthesia was not employed. The only case similar to the above, reported by Triadon, was one of simple upward dislocation, and also remained irreducible.—*Gaz. Méd. de Paris*, 45, 1877. E. F.

Large Needle traversing the Abdominal Cavity; Extraction; Recovery.—M. Tillaux reported the following case to the Société de Chirurgie: A man, thirty-three years of age, in a fit of temporary insanity attempted suicide by thrusting a needle, about three and a half inches long, into the abdomen. It passed through the abdominal cavity and entered the spinal column. Its large end could be felt through the skin of the belly. Its situation was the median line, three-fifths of an inch below the umbilicus. Twenty-four hours later M. Tillaux removed the needle with forceps, after incising the skin. The wound was covered with cotton, opium given, and the man recovered without complications. The needle was thrust into two cadavers, at a point two centimetres below the umbilicus in the medi line. In the first, it passed through the transverse colon, small intesti right common iliac artery and vein, and entered the fifth lumbar verteb In the second, the transverse colon, small intestine, the left common il vein, were traversed, and the point fixed in the fourth lumbar vertebra. *Gaz. Hebd.*, 49, 1877. W. T. B.

Miscellany.

Graduates of 1878.—The following is a list of recent graduates, as far as we have seen them reported:

Jefferson Medical College	203
University of the City of New York	153
Bellevue Hospital Medical College	130
University of Pennsylvania	127
College of Physicians and Surgeons, New York	109
Medical College of Ohio	102
Missouri Medical College	102
University of Louisville	71
Louisville Medical College	70
Miami Medical College, Ohio	51
St. Louis Medical College	49
Buffalo Medical College	43
Indianapolis Medical College	41
Cincinnati College of Medicine	33
Indiana Medical College	29
Woman's Medical College, Philadelphia	19
Louisville Hospital Medical College	17
University of California (1877)	15
Medical College of the Pacific (1877)	13
Medical College of Virginia	12

A Rival to Carbolic Acid.—Prof. Volkmann, of Halle, who has achieved such brilliant results with the use of Lister's method in surgery, has adopted the new antiseptic, thymol, in his clinics. His assistant, Dr. Ranke, reports fifty-nine operations in which thymol was used in place of carbolic acid, with strikingly good results. These operations included several amputations—of the leg, arm, breast, and foot; four excisions of the elbow; a gunshot wound of the knee-joint; a secondary amputation of the thigh; an excision of the hip, one of the shoulder, etc. The results obtained thus far in the major operations show that, under thymol, the secretion is much less and the rate of healing much quicker than when carbolic acid is used. Thymol has the advantage of being innocuous and almost non-irritant, and of not causing the least anæsthesia of the skin. The solution used consisted of thymol 1 gramme, alcohol 10, glycerine 20, and water 1,000 grammes. The much greater expense of thymol is counterbalanced, Dr. Ranke maintains, by the smaller quantity required and the few bandages needed.

College of Physicians and Surgeons.—The seventy-first annual commencement was held in Steinway Hall, March 1st, when degrees were conferred upon 109 gentlemen. Special diplomas were conferred on the following: John S. Aitkin, Talbot R. Chambers, Edward Fridenberg, Richard J. Hall, Ellsworth Elliott Hunt, Alexis M. Low, Edward G. Maupin, William D. McKim, Charles D. Scudder, Isaac Weil. The first examination prize of $100, for general proficiency, was awarded to Richard John Hall; the second, of $50, to Isaac Weil. The third prize, of $25, was awarded to two candidates, Edward Fridenberg and Ellsworth Elliott Hunt. The committee of the Alumni prize of $500 for the best thesis, and that of the Joseph Mather Smith prize, announced that none of the theses offered had been of sufficient merit to justify an award. Charles D. Scudder delivered the valedictory, and the graduates were addressed by Charlton T. Lewis, Esq.

Deaths from Chloroform.—The *British Medical Journal* of February 2d reports the death from chloroform, at the Devon and Exeter Hospital, of a lad eighteen years of age, on whom an operation for removing an elongated prepuce was about to be performed. Less than one drachm had been administered, when the patient suddenly died. The boy was healthy and well-developed, and the heart had been previously examined.

The Lancet of February 16th records a death in the Northern Hospital, Liverpool, from the administration of chloroform, in the case of a sailor, aged forty-one years, who was about to have an injured eye-ball extirpated. Complete anæsthesia had not been produced, when the patient suddenly died. The microscope showed commencing fatty degeneration of the heart.

The National Medical Library.—A memorial has been presented to Congress, by a committee of the Medical Society o the County of New York, of which Dr. A. Jacobi wa chairman, setting forth the great importance to the pro fession, in this country and Europe, of the completion of the catalogue of the National Medical Library. The specimen fasciculus, issued by Dr. John S. Billings, gave abundant evidence of the comprehensive plan on which the work would be carried out if the sanction of the Government could be obtained. The expenditure would certainly be a judicious one, as the value of such a complete index, if completed, will be almost incalculable.

University Medical College.—The thirty-seventh annual commencement exercises of this school were held at the Academy of Music, February 19. The Mott gold medal was awarded to Peter Hughes, and the Mott silver medal to Albert S. Burtt. The John E. Parsons prize was awarded to David Franklin; that for the best examination in pathology and practice, to Charles E. Quimby; that for materia medica and therapeutics, to George H. Felton; that for obstetrics, to Henry Levy; and that for ophthalmology and otology, to John E. Harper. The valedictory was delivered by George H. Felton, and the graduates were addressed by the Rev. Dr. John Hall.

Appointments, Honors, etc.—Dr. J. C. Egan, of Shreveport, has been elected President of the newly-organized Medical Association of Louisiana. Dr. Nathan Bozeman has been appointed one of the Visiting-Surgeons to the Woman's Hospital in this city. Dr. George L. Peabody has been appointed Assistant Pathologist to the New York Hospital.

The Montyon prize in physiology, for 1877, of the French Academy of Sciences, has been awarded conjointly to Dr. D. Ferrier and MM. Carville and Duret. Prof. Ponfic, of Göttingen, has been chosen to fill the chair of Pathology in Breslau.

A Huge Foundling Hospital.—One of the largest of the Russian charitable institutions is the Foundling Hospital in Moscow. The establishment covers as much ground as a village, and gives shelter to 1,700 wet-nurses and 2,000 babies. Fifty children are admitted daily at the gates. The boys are trained either as soldiers or mechanics, and the girls as domestic servants. The number of young people whom the hospital annually supports exceeds 30,000. The mortality among the inmates of the refuge is very great, and there is said to be urgent need of reform in its administration.

Medical Journals in Italy.—According to the *Annali Universali di Medicina e Chirurgia*, now in its sixty-third year, there are twenty-nine medical journals published in Italy. Five of these are issued in Milan, five in Naples, three in Rome, two in Bologna, one in Pisa, two in Palermo, one in Padua, one in Genoa, three in Turin, one in Venice, two in Florence, one in Forli, one in Reggio Emilia, and one in Modena.

Alumni Association, College of Physicians and Surgeons.—The following officers have been elected for the ensuing year: President, Dr. William H. Draper; Vice-President, Dr. Alexander N. Dougherty; Secretary, Dr. Charles Hitchcock; Assistant Secretary, Dr. J. N. Bertram. The annual dinner took place at Delmonico's, on Wednesday evening, March 6th, and was largely attended.

Protection against Arsenic-Poisoning.—M. Jeannel, of Paris, recommends that arsenic sold to the public should be mixed with a minute quantity of sulphate of iron and cyanide of potassium. It would thus make itself seen by the blue color, in case it were used by mistake in cooking, and the strong chalybeate taste would cause its detection in any article of food.

Lectures for Practitioners.—Courses of lectures lasting six weeks, on the various branches of medical science, were given in Berlin last year, and will be repeated this season. They are intended for country and other practitioners who wish to keep themselves well-informed with the least possible expenditure of time.

Bellevue Hospital Medical College.—The seventeenth annual commencement was held in the Academy of Music, February 28th. The graduating class numbered 130. The valedictory was delivered by Lewis C. Wagner, of the graduating class, and the address to the class was delivered by Lieutenant-Governor Dorsheimer.

Journalistic Notes.—The *London Medical Enquirer* will hereafter be issued quarterly, instead of monthly. We have received the second number, for January, 1878, of the *Australian Practitioner*, a quarterly journal of medicine, published in Sydney.

Correction.—In the report of a case of femoral aneurism, published in our last issue, on page 281, ninth line from the top, "violently vibrating" should read "violently pulsating."

The Late Prof. Peaslee.—At a meeting of the Faculty of Bellevue Hospital Medical College, the following Resolutions were adopted:

Whereas, In the wisdom of the merciful Father of all, it has seemed good to suddenly take from our midst our honored associate and co-worker, Prof. EDMUND RANDOLPH PEASLEE; and

Whereas, We, the Faculty of the Bellevue Hospital Medical College, desire to express our respect, esteem, and affection for his memory; Therefore,

Resolved, That we have received the intelligence of his death with heartfelt sorrow, and a deep sense of the greatness of our loss.

Resolved, That in future it will be our delight to recall the singular purity of a life in the presence of which the voice of envy was silent—a life nobly spent, unstained by meanness and falsehood, but beautiful in its private worth, and in its devotion to the highest aims of the profession in which he stood preëminent.

Resolved, That, in his lifetime, the wide-spread confidence he enjoyed and the many honors conferred upon him were only the just rewards of his high attainments as a scholar and his many and important contributions to science. His crowning work upon "Ovarian Tumors" stands almost without a rival in medical literature, in the high attributes of taste, judgment, and independent thought; and it behooves us, now that his record is finished, to proclaim what he, with the modesty of greatness, left unspoken—his own distinguished part in placing upon a firm foundation the operation for the removal of ovarian growths, which is justly regarded as the foremost achievement of modern surgery.

Resolved, That, in warm sympathy with his family, we direct that these Resolutions be forwarded to them, as a slight, though inadequate, expression of our regard for our deceased comrade.

Signed,
Fordyce Barker, M. D.,
Isaac E. Taylor, M. D.,
William T. Lusk, M. D.,
Committee.

The following resolutions were adopted by the students of Bellevue Hospital Medical College, New York, January 26, 1878:

Whereas, We, the students of Bellevue Hospital Medical College, have learned, with feelings of the most profound sorrow and regret, of the death of Prof. Edmund R. Peaslee, whom we all so greatly admired for his superior qualities as a teacher, his virtues as a man, and his constant devotion to the interests of science and our profession; Therefore, be it

Resolved, That, in his death our school has lost an earnest and justly-noted teacher; our chosen profession, a faithful and untiring worker for its honor and advancement; and society at large, an honorable and useful citizen.

Resolved, That, while we deeply deplore our loss, we yet meekly bow in submission to the inscrutable will of Providence, who doeth all things well; and shall ever commend to others, and strive to imitate in our own lives, those estimable traits of character which rendered him so eminent, and worthy of our emulation.

Resolved, That we extend to the family of our lamented friend and teacher our heartfelt sympathy in this their sad bereavement. Be it further

Resolved, That a copy of these Resolutions be given to the family of the deceased, to the secretary of our faculty, and to the medical journals for publication.

Chas. H. Eames,
D. Scofield,
Oscar A. King,
R. G. Ebert,
Frederic Herbert Lay,
Committee.

The following is the Report of the Committee of the New York Obstetrical Society, appointed to take action on the death of the late Dr. Peaslee, which was unanimously adopted by the society.

The New York Obstetrical Society desires to give expression to the incomparable loss which it has sustained in the death of Dr. E. R. PEASLEE, one of its founders and most distinguished members. It feels that he has, perhaps more than any one of its Fellows, contributed to the elevated standard which the society has acquired among its sister associations.

The roll-call of its meetings will prove his most constant and continuous attendance; its records, that he has brought to its consideration rich funds of material from the fields of his wide and carefully-studied experience.

To the value of its discussions he has contributed by his always luminous and logical statements; while his just and amiable temper promoted the harmony of its deliberations.

The social elements of the society have been equally expanded by his store of wit and humor.

EMIL NOEGGERATH, M. D.,
JOHN BYRNE, M. D.,
W. W. CHAMBERLAIN, M. D.,
A. J. C. SKENE, M. D.,
} *Committee.*

At a meeting of the Medical Board of the Woman's Hospital, held February 7th, the following Resolutions were adopted:

Whereas, It has pleased the Almighty, in His infinite wisdom, to remove from our midst our esteemed associate and fellow-laborer, Dr. EDMUND R. PEASLEE; Therefore, be it

Resolved, That by his loss the medical profession of this city has been deprived of one of its ablest and wisest members; one who, during his whole career, has discharged all his functions with an unflinching devotion to duty, and won the respect and esteem of all who knew him.

Resolved, That, in the death of Dr. PEASLEE, the Woman's Hospital in the State of New York has lost one who, by his devotion to its interests and untiring exercise of skill in its service, has contributed greatly to its efficiency and usefulness; and that its Medical Board has been deprived of a member whose judicious counsels, honesty of purpose, and amiability of disposition, had peculiarly endeared him to his associates.

Resolved, That we tender our deepest sympathy to the bereaved family in their affliction; that these Resolutions be published in the medical journals of this city, and that a copy of the same be sent to the family.

T. GAILLARD THOMAS,
T. A. EMMET,
} *Committee.*

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from February 14 *to March* 13, 1878.

Alexander, C. T., Major and Surgeon.—Relieved from duty in Department of the Columbia, to proceed to St. Louis, Mo., and report by letter thence to the Surgeon-General. S. O. 38, A. G. O., February 21, 1878.

Smart, Chas., Captain and Assistant Surgeon.—Assigned to temporary duty at Fort Preble, Me. S. O. 19, Division of the Atlantic, March 11, 1878.

Cronkhite, H. M., Captain and Assistant Surgeon. — Relieved from duty in Department of Arizona, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 48, C. S., A. G. O.

Carvallo, C., Captain and Assistant Surgeon.—Leave of absence extended two months. S. O. 51, A. G. O., March 9, 1878.

Winne, C. K., First Lieutenant and Assistant Surgeon.—Granted leave of absence for one month on surgeon's certificate of disability. S. O. 14, Department of the Platte, February 13, 1878; and leave extended one month, S. O. 17, Division of the Missouri, March 4, 1878.

Havard, V., First Lieutenant and Assistant Surgeon.—Relieved from duty in Department of Dakota, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 48, C. S., A. G. O.

Turrill, H. S., First Lieutenant and Assistant Surgeon. To report to the Commanding Officer at Fort Clark, Texas, for duty. S. O. 31, Department of Texas, February 9, 1878.

Barnett, R., First Lieutenant and Assistant Surgeon.—To resume his duties as Post-Surgeon at Lake Charles, La. S. O. 22, Department of the Gulf, February 12, 1878.

Beall, G. T., Captain and Assistant Surgeon.—Granted leave of absence for two months on surgeon's certificate of disability. S. O. 51, C. S., A. G. O.

Obituary.

Dr. Lunsford P. Yandell, Sr., of Louisville, Ky., died February 4th, of pneumonia, in the seventy-fifth year of his age. He was born in Tennessee, and graduated at the University of Maryland in 1825. In 1831 he was called to the chair of Chemistry in the Transylvania College, which position he held for six years, when (1837) he came to Louisville and assisted in the organization of the Medical Institute, which subsequently became the medical department of the University of Louisville. He filled at different times, in this institution, the chairs of Chemistry, Materia Medica, and Physiology. He continued in the University until 1858, when he removed to Memphis, Tenn., and for a year or so was Professor of Practice in a medical school which was established there. During the war he was for a time in the hospital-service of the Confederacy. At the time of his death he was engaged on a volume containing biographical sketches of distinguished medical men of the West. In 1872 he was made President of the College of Physicians and Surgeons, of Louisville, and in 1877 he was chosen President of the Kentucky State Medical Society.

Dr. E. M. Hodder, one of the most distinguished members of the profession in Canada, died at his residence in Toronto, February 20th, aged sixty-seven years. He settled in Canada about 40 years ago, and had practised in Toronto since 1843. He was Professor of Obstetrics in Trinity College, Toronto, from 1850 to 1857, and lecturer on that branch for several years in the Toronto School of Medicine. He was for 26 years connected with the Toronto General Hospital, and occupied various other prominent positions. He was President of the Canada Medical Association in 1875, and was a member of the Medical Council of Ontario at the time of his death. He was eminently skillful in surgery, and was the most successful ovariotomist in Canada. He was the first to inject milk into the veins in collapse—an expedient to which he resorted with some success in the cholera epidemic of 1845, and which may yet insure him lasting fame.

James Blundell, M. D., F. R. C. P., London, whose death occurred January 15th, at the age of eighty-seven, was in many respects a very remarkable man. When in his prime he enjoyed a large and lucrative practice in London, and was lecturer on Physiology and on Obstetrics in several of the metropolitan hospitals. A small volume published by him as early as 1824, entitled, "Researches, Physiological and Pathological," dealt largely with the surgery of the abdomen, and was prophetic in some of its suggestions. He says: "The extirpation of the ovarian cyst in scirrhus, combined with dropsy, or in simple dropsy, will, I am persuaded, come into general use." He also suggested normal ovariotomy, the extirpation of the healthy ovaries, as "probably an effectual remedy in the worst cases of dysmenorrhœa." Later in life, in his lectures on obstetrics, he said: "I do not like to see an elegant pair of forceps. Let the instrument look like what it is—a formidable weapon. '*Arte non vi*' may be usefully engraved upon one blade, and '*Cave perineo*' upon the other." With regard to many great surgical procedures, he was much in advance of the time in which he taught and practised.

DR. FLEETWOOD CHURCHILL, of Dublin, distinguished as an obstetrician and an author, died January 31st, in his seventieth year. He was for many years prominent as a lecturer, having been appointed Professor of Midwifery to the School of Physic in Ireland in 1856. He was for several years President of the Dublin Obstetrical Society, and was for two years President of the King and Queen's College of Physicians. He is best known in this country through his work on "The Theory and Practice of Midwifery," and that on "The Diseases of Women."

M. CLAUDE BERNARD.—The death of this illustrious French physiologist and savant occurred February 11, 1878. He was born in 1813, and in the earlier part of his career studied under Magendie, Flourens, and Longet. He was a lecturer on Physiology in 1846, and has since that time attained all the honors his profession and his country could award him. He was a member of the Academy of Sciences, and Professor of General Physiology to the Faculty of Sciences of Paris. His memoir on "The Functions of the Liver," published in 1853, and that on "The Pancreas," published in 1856, were both recognized as master-pieces of experimental physiology and marvels of research. He accomplished a vast amount of work of the highest order, and contributed greatly to the progress of medicine in his generation. The Government of France awarded him the high honor of a public funeral, which was conducted with great pomp and splendor.

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Original Communications.

ART. I.—*The Intra-venous Injection of Milk as a Substitute for the Transfusion of Blood. Illustrated by seven operations.* By T. GAILLARD THOMAS, M. D., New York.

THE possibility of saving life by the introduction of healthy blood into the circulation of one suffering from sudden loss or gradual depreciation of the vital fluid, naturally presented itself as a resource to the minds of physicians of the earliest periods. Hebraic, Egyptian, and Syriac medical records all tell of the practice of this procedure in the various ages of which they speak; and steadily downward through the times of Greece and of Rome can traces, well marked and distinct, be discovered of its occasional adoption as a therapeutical resource. Nor was the operation lost sight of in the advance of modern times, for, in 1492, we learn that one of the Roman pontiffs was submitted to it at the hands of a Jewish physician; that in 1615 an essay was written upon the subject by Libavius, of Halle; that in 1652 Folli, of Italy, contrived an apparatus for arterio-venous transfusion, and that in 1664 the process was fully described by Daniel, of Leipsic, as one to which he was in the habit of resorting.

But it was not until 1665 that the transfusion of blood was put upon a scientific basis as a surgical procedure. At that time Lower and Boyle, of England, brought the subject before the Royal Society of London. Since that period, it has been a recognized resource; and, with varying frequency and equally varying results, it has been practised up to our day.

Toward the end of the eighteenth century, a great degree of apathy was exhibited in reference to this operation, but this was, in 1818, rapidly dispelled by the brilliant results of an eminent obstetrician, whose death has occurred only within the past three months—Dr. Blundell, of London.

It is neither necessary nor appropriate for me in this connection to follow out the history of the subject farther than this. In leaving it with this very desultory sketch, I must draw attention to the labors of Roussel, of Geneva, who has labored conscientiously, intelligently, and most successfully in this field. His *brochure* upon it, introduced to English-speaking physicians by Dr. Paget, of London, constitutes a succinct and complete handbook, to which all may with profit refer.

Despite the intelligent and energetic efforts which have been made in behalf of transfusion of blood during more than two hundred years under the fostering influences of modern science, what is its real status as a resource in medicine to-day? Putting aside the sanguine expectations of enthusiasts and partisans, what is its just estimate at the hands of the profession in our time? Whether my reply to this question will meet the indorsement of my colleagues I do not know, but it is this: transfusion of blood into the human system holds the position of an operation the plausibility and theoretical advantages of which all admit, but the absolute utility and practical results of which amount to very little indeed. If proof of the correctness of this reply were demanded, I would point to the infrequency of its adoption in a large metropolis like this, to the fact that many of our boldest and most skillful surgeons have never performed it, and that cases demanding it, according to the dicta of its upholders, are dying among us constantly without receiving the benefits which are claimed for it.

Nothing is farther from my desire than to depreciate the claims of a procedure which I sincerely hope to see ere long become much more frequently employed than it has been in the past. My only wish is to state the facts exactly as they exist, and I believe that I have done so in the preceding sentences.

The reason for the unfortunate fact that the transfusion of blood is rarely resorted to, and that it to only a very limited degree enjoys the confidence of the profession, is to be found, I think, in the inherent difficulties and dangers of the operation, almost all of which arise from the tendency to coagulation which characterizes the fluid which is employed. A pellet of lymph or a limited quantity of atmospheric air entering the circulation, or, as Roussel[1] declares, the mere contamination of the blood by contact with air, is enough to invalidate the operation and turn the scales against success.

Could another vital, animal fluid be discovered which would fulfill the indications of increasing the amount and improving the quality of the blood, and which did not possess the disadvantages above mentioned, a great gain would be accomplished, and a procedure now little practised might perchance become much more popular, and produce results much more prolific in good.

The object of this paper is to prove that in the milk of the cow, probably also in that of other mammalians, we possess such a fluid, and it will be given up chiefly to the presentation of cases in which the experiment has been tried upon the human being.

When the proposition of injecting milk directly into the venous blood as it goes toward the heart is first made, it is likely to excite violent prejudice and opposition in the mind of the hearer. The fluid, it is usually declared, is not homogeneous with the blood; the casein will cause obstructions in small arteries; and the emunctories, in endeavoring to eliminate it, will become overwhelmed by congestion. But is there really much more apparent want of homogeneity between milk and blood than between chyle and blood? The latter collected in the receptaculum chyli passes up the thoracic duct, and, as an oily, white, milky-looking fluid, is emptied directly into the left subclavian vein. The chyle now mingles with the blood, where, between the venous extremity of the thoracic duct and the right heart, it can readily be traced in oil globules and granules. While passing through the lungs these disappear, but in what manner is not certainly known. But not only is the blood supplied with fat by the thoracic duct; the portal vein likewise absorbs it from the lining membrane of the intestines, and, passing it through the liver, empties it into the general circulation. This double supply is too much for the lungs to dispose of, and the fatty elements which form the basis of chyle accumulate in appreciable quantities throughout the blood.

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[1] *Op. cit.*, page 8.

Some years ago a practitioner, of very large experience in this city, brought before the Academy of Medicine a quantity of blood, which presented, he thought, a most extraordinary and unheard of phenomenon. This blood, about sixteen ounces in amount, had been drawn by him on the previous day from the arm of a gentleman who had fallen from his seat at the dinner table, after a hearty meal, in an attack of apoplexy. Without special design the doctor had left the blood standing in a glass vessel in his office, when after some hours he had discovered, toward the top of the vessel, a distinct and voluminous zone of white, milky-looking fluid, a fluid which had evidently been previously mixed with the blood, and was now separated from it. To this remarkable phenomenon the attention of the Academy was called. Prof. Dalton, who was present, stated in explanation the well-known physiological fact that, for some hours after digestion, the blood, if the food taken has been rich, is always loaded with a superabundance of oleaginous material, and that if drawn will often present the appearance known as that of "chylous" or "milky" blood. In the dog, physiologists produce this condition at will, to demonstrate the fact which I have stated.

This is the fluid which Nature mixes with the blood at shor intervals all through man's life; this the fluid which the bloo utilizes for its own multiplication and nutrition, rapidly man ufacturing from the milky, oily, homogeneous mass the red liquid upon which the tissues live. This fluid is not very unlike milk, and in injecting milk into the veins we are imitating Nature very closely in one of her most simple physiological processes. Let us compare the chemical constituency of chyle and milk:

CHYLE CONSISTS OF	MILK CONSISTS OF
Fluid plasma,	Water,
Leucocytes,	Casein,
Fat globules.	Butter,
	Sugar,
	Soda,
	Chlorides of sodium and potassium,
	Phosphates of soda, potash,
	Magnesia, lime, and iron, and alkaline carbonates.

Chyle is fat in emulsion in a serous fluid. Milk is fat molecularly divided and suspended in water with casein and sugar. The salts are so small in amount that in 1,000 parts they represent only 6.

Upon this fact I do not propose to rest to any extent for the support of my views in reference to the substitution of milk for blood in transfusion. I shall offer much stronger ones. My wish is only, before proceeding further, to silence prejudice by pointing out the fact that, while chemically inferior to blood, which is identical with the fluid to be augmented and improved, milk is more allied to chyle, the material of which Nature makes blood, than any other fluid with which we are acquainted.

I shall now bring forward the details of the subject in connection with cases which illustrate it.

On the 9th of October, 1875, Mrs. S., of Oswego, N. Y., temporarily residing in Brooklyn, aged thirty years, the mother of two children, called upon me by the advice of Dr. Chauncey L. Mitchell, of the latter city, and gave me the following history of her case.

Seventeen months ago, up to which time she had been in good health, she had been safely delivered of a child. Since that time she had been slowly but steadily failing in strength, becoming more and more feeble, and within the last six months rapidly emaciating. No cause could be found for this constitutional depreciation until last May, when Dr. C. C. P. Clark, of Oswego, upon making a careful vaginal examination, discovered a solid tumor connected with one ovary, not larger than an egg. Since that time this tumor had gone on steadily increasing in size until, at the time of her examination by me, it was as large as the uterus at the sixth and a half or seventh month of pregnancy.

Besides the marked constitutional depreciation and emaciation which had developed during the past six months, no other decided symptoms had shown themselves. The menstrual discharge had been absent for three months, and some neuralgic pains had existed about the inguinal regions and lower part of the abdomen. When asked what her chief suffering was, the patient would reply that she suffered no absolute pain, but that she felt generally wretched and exceedingly feeble.

Physical examination yielded the following results: the uterus held its normal position as to elevation in the pelvis, but was pushed forward toward the symphysis pubis by a round, hard immovable tumor, which occupied Douglas's pouch and filled the upper part of the sacral concavity. The uterus measured, from os externum to fundus, three inches; and upon rotation of the uterine sound it could be distinctly, though not freely, moved without impressing the movement upon the tumor which lay behind it. Upon conjoined manipulation the large, hard tumor mentioned as occupying the abdominal cavity could be felt. It extended above the umbilicus for about three inches, and filled the false pelvis from one iliac crest to the other. Its surface was flat and smooth, the tips of the fingers could be inserted under its edge, and the tumor could be easily moved in every direction, though only to a limited degree.

I was somewhat puzzled at finding that movements impressed upon the abdominal tumor did not proportionately influence that portion felt behind the uterus. This fact was fully explained upon opening the abdominal cavity at a later period. The uterus moved with the abdominal tumor, but not so freely as it would have done had this been attached to it by sessile attachment or even by a very short pedicle.

Owing to the enfeebled state of the patient, the physical examination was not made so thoroughly as it might have been, and was concluded as rapidly as was consistent with clearness of diagnosis.

As the patient was already greatly enfeebled, and was steadily becoming more and more exhausted, I readily assented to her own desire and that of her friends, and agreed to perform ovariotomy without much delay.

On the 14th of October, at 3½ o'clock P. M., I proceeded to operate in the presence of Dr. C. C. P. Clark, of Oswego, Drs. Mitchell and Skene, of Brooklyn, and Drs. Hunter, Walker, and Jones, of New York. The patient having been etherized by Dr. Skene, and placed upon her back upon a table, I made an incision through the peritoneum, extending from a point two inches above the umbilicus to the symphysis pubis. Through this the tumor, which was unattached, was removed. The pedicle, consisting of the right ovarian ligament, Fallopian tube, and extension of the round ligament, was secured in a clamp, but upon subsequent examination it was found to be so tense that I ligated and returned it to the pelvis.

Upon examining the uterus it was found to be perfectly normal, but the left ovary was as large as a bullock's kidney, and lay behind the uterus, distending and occupying Douglas's pouch. This was removed like the right, and the abdominal incision rapidly closed.

The whole operation occupied 36 minutes. At its conclusion the patient was removed to a warm bed, hot bricks put to her feet, the room darkened, and perfect quiet enjoined.

The patient was left under the care of Dr. S. B. Jones, who, on account of her very enfeebled condition, remained with her constantly for the next five days, and to his watchfulness and care I cannot but feel that the subsequent recovery of the patient was in great part due.

She was kept entirely upon the milk diet, taking this in very small amounts, and at intervals of three or four hours, and was quieted by small doses of morphia.

During the next 36 hours all went well, the temperature did not rise above 102°, and the only anxiety which was felt in reference to her during this period was created by the fact that she could take very little food without vomiting, and that her pulse, the rate of which was 130 to the minute, was exceedingly small, feeble, and flickering. On Friday, the 15th, I saw her in consultation with Drs. Mitchell and Jones. On Saturday morning, just 36 hours after the operation, I received a telegram stating that a rather profuse uterine hæmorrhage had come on, and that the patient had lost ground decidedly in consequence. At 10 that morning I saw her, and the condition of affairs looked decidedly unpromising. The pulse was so rapid and weak that at times it could scarcely be felt, and the patient began to vomit everything that was put into the stomach, even small pellets of ice. The foot of the bedstead was elevated twelve inches, cold was applied to the vulva, and the patient kept perfectly quiet. From this time nourishment was given by the rectum alone.

On the evening of that day I was forced to go to Rhinebeck, whence I could not return before the evening of the following day. At 11 o'clock that night I received a telegram from Dr. Jones, stating that the uterine hæmorrhage had recurred so violently that, with the assent of Dr. Mitchell, he had used a vaginal tampon, and that the patient was sinking so rapidly that she would die before morning. Reaching home late on Sunday night, I found that death had not occurred, and early on Monday morning I went to Brooklyn to see her.

On this visit I found everything looking very badly. Both stomach and rectum rejected all nourishment; the temperature was only 102°, but the pulse was small, flickering, and beating at 140 to the minute. It was agreed that very small amounts of fluid food should be cautiously tried by stomach and rectum, and, as the patient appeared to be dying from sheer exhaustion, the result of previous enfeeblement by the disease and more recent starvation and loss of blood, that, in case Drs. Mitchell and Jones should toward night feel convinced that death would occur, I should be summoned to perform transfusion.

At 6 that evening (Monday, four days after operation) I received a telegram urging my immediate attendance on Mrs. S., who appeared to be rapidly sinking. When I saw her I found her bathed in cold sweat, with a temperature of 101°, a pulse of 150, and a facies expressive of approaching dissolution. It was decided at once to try the effect of transfusion.

Three experiments with the transfusion of blood rendered me very averse to the employment of this fluid, and with the consent of my colleagues I decided to employ instead perfectly pure, fresh milk. This idea suggested itself to my mind from the recollection of some cases in which it was employed 28 years ago by Dr. Edward M. Hodder, of Toronto, Canada. In 1850 Dr. Hodder injected this fluid into the veins of three patients moribund from Asiatic cholera, which was at that time epidemic in Canada. In a communication from him he informs me that he injected as much as 14 ounces at one sitting; that no alarming symptoms occurred; that good results manifested themselves from the first; and that two recoveries had taken place in patients who appeared moribund when the operation was resorted to. He was encouraged to try the method from the fact that Donné had injected milk into the veins of dogs and rabbits without injury to them. Since the cases reported by Dr. Hodder, I knew of no one who had repeated this experiment in the human being until a year before this time, when Dr. Joseph W. Howe, of this city, injected six ounces of warm goat's milk into the cephalic vein of a patient suffering from tubercular disease, and who appeared to be dying from starvation in consequence of an inability to retain nutritious material by either stomach or rectum. Dr. Howe declares that—

> "When nearly two ounces had been thrown into the circulation, he complained of pain in the head and vertigo. The eyes twitched from side to side (*nystagmus*), and he said he could not see. The same symptoms recurred when the next ounce was thrown in, and ceased when the injection was suspended. The third repetition of the same quantity produced pain in the chest and dyspnœa, and no brain symptoms. His pulse seemed to be fuller after the operation, and he said he felt better. Death took place four days afterward. A *post-mortem* examination showed that there were no clots in the veins of the arm or in the lungs. The brain was normal. I don't think the operation improved his condition, notwithstanding the fact that the patient himself and the house surgeon thought it did."

Having decided to inject milk into the veins of my patient, a young and healthy cow was driven into the yard, a pitcher with gauze tied over its top was placed in a bucket of warm water, the vein was exposed, and the cow milked at the moment the fluid was needed. By means of the very perfect and safe transfusion apparatus of M. Colin, of Paris, I slowly injected eight and a half ounces into the median basilic vein. The first effect which evidenced itself did so after about three ounces had been injected. Then the pulse became so rapid and weak that Dr. Mitchell, who kept it under his finger during the operation, could scarcely detect it. The patient declared that she felt as if her head would burst, and seemed greatly overcome. I went on slowly, however, transfusing the fluid until the amount mentioned had been reached; she was then left perfectly quiet.

In an hour from this time she had a decided rigor, the pulse was found beating between 150 and 160 to the minute, and the temperature rose to 104°. This high temperature, however, soon passed off, and toward midnight the patient fell into a quiet sleep, from which she did not awake until morning.

I saw her about 10 the next day, when Drs. Mitchell and

Jones gave me a very encouraging account of her. As I entered her room she said, in a feeble voice, "I feel that I am going to get well." This I was particularly glad to hear, as during the previous day she had given up all hope, and was utterly despondent. The pulse was beating at 116 to the minute; the temperature was 99½°; the tendency to sweating had disappeared; and the facies had much improved.

During the day very small amounts of iced milk and lime-water were given by the mouth and retained. From this time onward it would be needless to mark the daily changes which occurred. The patient steadily progressed to complete recovery, and on the twenty-first day after the operation, upon a visit made by Dr. Jones, she walked down-stairs to meet him. The notes taken by him on this occasion declare that "the appetite is excellent, the patient growing stout, sleeping well, and gaining every day."

Six weeks after the operation the patient had so completely recovered that she very soon after returned to her home in Oswego.

The tumors were proved by the microscope to be adeno-carcinoma.

This case was published, and Dr. J. W. Howe was prompted to experiment in reference to the matter still further. Experimenting upon seven dogs, he withdrew from the veins a number of ounces of blood, and replaced it by intra-venous injection of milk. Every dog died promptly. He likewise tried the lacteal injection upon a man in the third stage of phthisis, in whom death from coma occurred in a few hours after the operation.

These results in no wise discouraged me in my pursuit of the subject, for I found that Dr. Howe had injected milk which had been drawn from the cow in a locality one or one and a half hour distant from New York, which place it had reached by rail after two and a half or three hours' lapse of time. This milk had, of course, undergone decomposition, and developed noxious properties. At my request, Dr. Eugene Dupuy repeated in his laboratory the same experiments upon dogs, and he established to his full satisfaction the following facts: 1. That the intra-venous injection of decomposed milk into dogs is uniformly fatal; 2. That the same experiment, if practised with perfectly pure and fresh milk, is entirely innocuous.

Fortified by my own very fortunate experience, and by the experiments of Dr. Dupuy,.I awaited the next case in which I should feel justified in repeating the procedure. This occurred on February 7, 1878, and is here given.

The patient, A. S., aged 22 years, married six months, native of Maryland, was admitted to the Woman's Hospital on account of a very large ovarian tumor which had been discovered nine months before. She was extremely exhausted, and the prognosis which was made as to her recovery from operation was very unfavorable. The removal of the tumor was rendered exceedingly difficult by numerous and firm adhesions, and in 24 hours acute peritonitis developed itself. After coming to the verge of death, the patient seemed to be recovering, when, on the fourteenth day after operation, a very large abscess discharged from the abdominal cavity a pint or more of pus. This exhausted her very much, and in three days from this time she was regarded as being moribund. From this point I base my statements upon the very careful bedside notes of Dr. Van Vorst, the house-surgeon of the hospital, who attended my patient with a devotion and zeal which I cordially acknowledge here.

February 27th, 8 P. M.—Pulse 152, hardly perceptible; temperature 103⅘;° mental aberration marked; patient semicomatose; aroused with some difficulty. Feeling confident that, unless prevented from so doing by some very decided effort, my patient must very soon die, I decided at once upon the injection of milk into the veins. With great difficulty I succeeded in obtaining a cow from the stable of a gentleman living a mile and a half away, and it was driven to the door of the pavilion in which the patient lay. While the cow was being milked into a clean, warm china pitcher covered with carbolized gauze, through which the milk was strained, I opened the median basilic vein of the right arm, and in less than a minute after the milk was furnished it had begun to flow very slowly into the patient's body.

The apparatus employed for injection was a glass funnel, having attached to it a piece of India-rubber tube with a very small canula at its extremity. After and during operation, patient was sustained by hypodermic injections of brandy and aromatic spirits of ammonia. At 10 P. M. patient had a chill. At 11.30 P. M., pulse much improved in force, and diminished in frequency; temperature 100⅘°. At 9 A. M., on the 28th, Dr. Hunter, the assistant-surgeon of the hospital, calling upon me to report, I asked at what hour the patient had died, and was surprised to learn that on his morning visit she was talkative and stronger, and was found by him reading a letter from her husband.

The patient takes nourishment *per orem* and *per anum*, and stimulants subcutaneously (brandy and ammonia). The injection of milk had evidently renewed the patient's strength. Everything progressed favorably until March 1st, when the patient's vital forces were evidently again rapidly failing, and a second injection of milk was determined upon. So very much exhausted had she become that it was questioned by all who saw her whether the effort at lacteal injection would not destroy life. The median basilic of the left arm was exposed, and fifteen ounces of milk (received at the moment from a cow at the door) were slowly injected, or rather allowed to flow into the vein.

Before the milk was all injected, the pulse fell sixteen beats and became perceptibly stronger. At 11 A. M., patient complained of headache; at 12 patient became almost pulseless, and temperature went up to 103⅗°; but she rallied when restoratives were applied, chief among which were the subcutaneous injection of brandy and ammonia. March 2d, 7 A. M., pulse, 118; temperature, 98⅗°. General strength greatly improved. 7 P. M., temperature, 99°. 11 P. M., pulse, 125; temperature, 100°. March 3d, 7.30 A. M., pulse, 118; temperature, 100⅗°. Eyes sunken, tongue dry and brown, at times semi-comatose, very restless.

At this time I was called away from town, and left my patient with all confidence to Dr. James B. Hunter, who, at 12 M., injected into left cephalic vein six ounces of milk—at this time, the pulse was 160. 1 P. M., pulse cannot be accurately counted, but approximatively it was estimated at 190; temperature, 104°—had a chill. March 4th, 8 A. M., temperature, 102°; pulse, 122. At 3 P. M., eight ounces of milk injected by Dr. Hunter. Patient evidently subsisting only upon intravenous injection of milk, and failing steadily. 6 P. M., temperature, 103⅖°; pulse, 152.

March 5th, 6 A. M.—Pulse, 156; temperature, 102⅘°. Diarrhœa—wound evidently communicating with intestine. 11 A. M., eight ounces milk injected into right radial vein. After this patient did not rally, but died at 1 P. M.

At first view it may appear that the lacteal injections, in this case, were productive of less favorable results than were those employed in the first case related, because the first patient's life was saved by one injection, while that of the second was lost after five injections had been practised. This view is an entirely erroneous one. The second patient was seen constantly with me, by Drs. J. B. Hunter, H. F. Walker, C. S. Ward, S. B. Jones, the members of the House Staff of the hospital, and others, and no one of these doubted that death would have inevitably resulted in a very few hours had not life been prolonged by the influence of the nutritive intravenous injections. Take the detailed reports of any one of these occasions, as already given, and few will feel inclined to doubt this conclusion. On the first occasion the patient was surely moribund. The pulse, beating at 152 to the minute, could scarcely be felt at the wrist, the surface was cold and covered by a clammy sweat, the patient was semi-comatose, and when aroused was decidedly aberrant in intellect, the respiration was jerking and automatic, and the facies was unmistakably expressive of rapidly approaching dissolution. It must be remembered, likewise, that those who arrived at the conclusion that death was imminent in this case were men of large hospital experience, who are constantly dealing with cases of ovariotomy, and who would not likely have made any mistake in the matter. Not on one occasion only was this conclusion arrived at, but on four, for, as I have already stated, it was thought that on no one of the occasions on which the lacteal injection was practised would life have lasted more than a few hours, without its roborant effect.

Here we see a patient dying of a most aggravated form of disease, as the report of the *post-mortem* examination will presently reveal, whose life was, to all appearances, prolonged for six days by five intra-venous injections of milk. That she would have recovered, had she not been affected by localized gangrene of the large intestine, a morbid state which was incurable, I do not doubt. With that condition existing, it is not to be wondered at that, in spite of four reprieves, death should have resulted in the end.

The necropsy was made by Dr. Maxwell, pathologist of the hospital, and, as it presents points of great interest, I present his notes of it in full:

"*Autopsy, March 5, 1878, at 6.30* P. M.—Died at 1 P. M. Emaciation marked. In the median line, about 1½ inch above the pubes, is a wound in the abdomen 1¼ inch long, in the upper part of which a small mass of fæces is seen to protrude.

"The omentum pedicle and adjacent parts are firmly adherent to the edges of the wound, forming a small cavity filled with a thick yellow mixture of pus and fæces.

"At the upper part of the wound, where the fæces are seen, the finger can be passed toward the right into the intestine. The opening appears to involve a little more than the anterior half of the gut, and the mucous membrane is everted over its edges. After removing the pus, the pelvic tissues, in the right groin, are seen to be very black, soft, and putrid, but not œdematous. The tissue is in a similar condition at the fundus of the uterus, but is normal beyond two lines from the surface.

"In separating the adhesions a cavity is found in the left groin near the anterior superior spinous process of the ilium, which contains about two ounces of pus. Its walls are black and putrid.

"Separating the adhesions still further, no pus is found outside of the cavity of the wound, nor are the parts softened or putrid. Behind the omentum the intestines are not adherent or injected, nor is any fluid or pus found.

"The opening into the gut is found to be into the caput coli, at its junction with the ilium or small intestine. The appendix vermiformis is normal.

"Another opening is also found into the colon, about 12 inches above the anus, viz., near the junction of the descending colon and rectum. Here the gut is completely separated.

"All the parts around the wound were found firmly adherent to the pedicle and the left broad ligament of the uterus.

"Uterus lies with the cervix strongly drawn toward the left groin—the os being 1 inch above Poupart's ligament, and at the junction of its inner and middle third. The fundus lies to the right of the wound. Vagina, entire and normal. Bladder empty—much contracted and softened, so that the finger readily passed through its tissue. Inner surface, very rough. Uterus and bladder removed. Uterus laid open; tissue, firm and white; thickness, normal; no congestion; no evidence of metritis. A single plug of fibrin was found in one of the uterine sinuses, near the fundus. On scraping the cut surface the blood appears distinctly whitish, as if purulent. Size normal, except slight elongation from traction on the pedicle; length, 3 inches. Ovary—right normal—left wanting. Bladder—small, with strongly marked rugæ, all of which are covered with a dark-brown gritty sabulous material, probably urates. Under these deposits the mucous membrane is distinctly congested and thickened, but the sub-mucous tissue is everywhere normal.

"Kidneys, both large and fatty. Tissue, firm and not congested. Capsules not adherent. Pelvis and calices contain large flakes of exfoliated epithelium.

"Scraping the cut surface gives a thin purulent-looking fluid. Ureters, both slightly enlarged.

"Spleen, firm and normal.

"Chest, not examined."

The next and last case which I present is of little value in illustration of the good effects of milk as a substitute for blood injected into the veins. It simply corroborates what has been already fully proved, the fact that milk injected into the circulation is innocuous. The patient was bleeding to death before and during the operation, and bled steadily after it. Losing a great deal more than was supplied to her by the lacteal injection, she died from the disproportionate loss.

The patient entered my service in the Woman's Hospital with a very large ovarian tumor. This I removed by ovariotomy, and, finding it adherent all over the anterior wall of the abdomen, I had to tear it from the peritoneal cavity, leaving bleeding surfaces, from which steady oozing occurred, which could not be checked. I closed the abdominal wound, preferring to take the chances of this oozing proving fatal than to expose the peritoneal cavity for a long time, and strive against a species of flow which I felt could not be controlled. In electing this course I may have been in error; but, having often gained success by it in times past, it was my choice on this occasion. In sixty-five hours it became evident that the patient was sinking from hæmorrhage; and, withdrawing the cork which closed a drainage-tube which had been left in the abdominal cavity, one pint of fluid blood escaped, and later in the day an equally large amount flowed out. A consultation was now held with Drs. Hunter and Walker, as to the propriety of opening the wound, and endeavoring to stanch the flow. Had we supposed it possible that this was occurring from distinct and isolated vessels, this course would have been at once adopted, but we felt that in this case it would effect no good, while it would assuredly destroy what slight chance of life remained to the patient. The only hope lay in sustaining the strength, and trusting to the hæmostatic powers of Nature.

Under these circumstances the median basilic vein was opened, and five ounces of fresh milk were injected within one minute after removal from the udder of the cow. No perceptible effect was produced, and in fourteen hours after it the patient sank and died.

An autopsy revealed the fact that hæmorrhage had steadily continued after the practice of intra-venous injection, one pint of blood being found in the peritoneal cavity, and the whole abraded anterior abdominal wall was found to have exuded this, as if by a bloody sweat.

Enumerating all the cases in which milk has been injected into the general circulation, in place of blood, twelve are now on record: 3 by Hodder; 2 by Howe; 7 by Thomas.

In one instance only did evil results manifest themselves (one of Howe's cases); and this should not be considered, since decomposed milk was employed, which, like decomposed blood in transfusion, would almost surely produce fatal consequences.

Basing my conclusions, then, upon experience, and in no degree whatever upon theory, I venture, in concluding this essay, to sum up the matter in the following propositions:

1. The injection of milk into the circulation in place of blood is a perfectly feasible, safe, and legitimate procedure, which enables us to avoid most of the difficulties and dangers of the latter operation.

2. In this procedure, none but milk removed from a healthy cow within a few minutes of the injection should be employed. Decomposed milk is poisonous, and should no more be used than decomposed blood.

3. A glass funnel, with a rubber tube attached to it, ending in a very small canula, is better, safer, and more attainable than a more elaborate apparatus, which is apt, in spite of all precautions, to admit air to the circulation.

4. The intra-venous injection of milk is infinitely easier than the transfusion of blood. Any one at all familiar with surgical operations may practice it without fear of great difficulty or of failure.

5. The injection of milk, like that of blood, is commonly followed by a chill, and rapid and marked rise of temperature; then all subsides, and great improvement shows itself in the patient's condition.

6. I would not limit lacteal injections to cases prostrated by hæmorrhage, but would employ it in disorders which greatly depreciate the blood, as Asiatic cholera, pernicious anæmia, typhoid fever, etc., and as a substitute for diseased blood in certain affections which immediately call for the free use of the lancet, as puerperal convulsions, etc.

7. Not more than eight ounces of milk should be injected at one operation.

8. In conclusion, I would suggest that, if milk answers, not as good, but nearly as good, a purpose as blood under these circumstances, its use will create a new era in this most interesting department of medicine. That it will answer such a purpose, I am convinced from lengthy consideration and some experience of the matter; and I would be false to my own convictions if I did not predict for "Intra-venous Lacteal Injection" a brilliant and useful future.

Art. II.—*An Analysis of the Examinations of Seventy-seven Pregnant Women, with a Synopsis of their Labors.*[1] By P. Brynberg Porter, A. M., M. D., Attending Physician for Diseases of Women at the Northeastern Dispensary, and for Diseases of Children at the Demilt Dispensary, New York.

The notes upon which this paper is based were taken some time since, during two terms of service (of three months each) as resident accoucheur at the Philadelphia Hospital; but are now for the first time collected in such a form as to make them available to the profession.

Nothing specially new or notable will be found in them; but, in the hope that they may not prove entirely devoid of interest or service, they are offered as a slight contribution to the subject of obstetrics from the field of conscientious clinical observation.

Menses.—Of the 77 patients, 37 were multiparæ and 40 primiparæ. The first question addressed to each one was in regard to the period of the cessation of the menses, and in two instances it was found that the women seemed to have menstruated once after gestation had commenced; while, in a third, menstruation had, in all probability, occurred three times after conception. In these cases confirmatory proof was afforded by the time of delivery, each one giving birth to a child at full term.

Another patient had small uterine hæmorrhages four or five times after the commencement of pregnancy, when taking an unusual amount of exercise, but not at her regular menstrual periods. She went to full term, however, and had a natural labor without *placenta prævia* or other complication.

The earliest age at which any of the patients menstruated was 11 years; and the one in whom this took place, who was twenty-nine at the time of her admission to the hospital, stated that her first child had been born 15 years before. It had died at the age of eleven months; but her second child was still living, being at that time twelve years old. Six others said they had given birth to children when they were sixteen years old. Another was pregnant for the fifth time at the age of twenty-three, though in two of her gestations she had not gone to full term; and this one made the statement that the catamenia returned about six weeks after the birth of each of her living children, and after that recurred regularly every month during the whole of lactation, without apparent detriment to herself or her offspring. The second inquiry was in reference to the

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[1] Read before the Medical Society of the County of New York, September, 1877.

General Health.—This was good in 42 cases (some declaring themselves in much better health than before pregnancy), and impaired in 35. Of the latter, 18 were multiparæ and 17 primiparæ.

The disorders most frequently complained of were the following: Headache, debility, dyspepsia, constipation, irritability of the bladder, swelling of the feet, and the muscular and neuralgic pains in the back, limbs, and abdominal walls, incidental to the condition of pregnancy. One patient suffered greatly from rheumatism, one from urticaria, one from fainting-spells, two from a tendency to vertigo, two from diarrhœa, one from disturbance of vision, one from nervous excitability, one from leucorrhœa, one from bearing-down pains, and two from bronchitis of some standing. One woman, when about four months pregnant, received a violent blow in the abdomen from running into a shelf in the dark. This made her ill for a week, and for three or four days after the accident she lost more or less blood daily from the vagina, but she then went on to full term without further trouble. A varicose condition of the veins of the leg was noted only in one case, but was doubtless present in others. Two of the patients were syphilitic, and had the characteristic throat-lesions of the disease. Great depression of spirits, sometimes amounting to melancholia, was observed in several of the unmarried primiparæ; and a remarkable instance of this was also seen in the case of a certain Hibernian matron, who, though the mother of seven legitimate children, had, unfortunately, been led astray. During her other pregnancies, she said she had always enjoyed excellent health, but now she was exceedingly miserable in every way. It seems that her husband had ungallantly deserted her and her hitherto happy family at some period of great distress; but, after he had gone, "a nice young man" of her acquaintance began to make himself very agreeable to the disconsolate daughter of Erin. Though he made several attempts upon her virtue, he did not succeed in accomplishing his fell design, until, on one occasion, he made his appearance armed with a very inviting-looking black bottle; and, of course, Irish good-humor and sociability could not refuse to take a "wee drap wid a friend." In an evil hour she partook of its inebriating contents, and the consequence was, that the citadel of her chastity, unable to withstand the combined assault of the forces of Dionysus and Aphrodite, surrendered at discretion. Hence the existing tumefaction of Mrs. Finnegan's abdomen—"et hinc illæ lachrymæ."

Morning Sickness.—This was noticed in 46 cases, 31 of them being primiparæ and 16 multiparæ, representing a proportion of about two to one. The following are some of the more unusual cases:

1. *Multipara.*—Continued during the whole of gestation, as in seven previous pregnancies.

2. *Primipara.*—Did not commence till about the time of quickening.

3. *Primipara.*—Lasted for three days only.

4. *Multipara.*—Commenced in the second month, and continued steadily up to the time of examination, about one month before confinement.

5. *Multipara.*—During the whole of gestation.

6. *Primipara.*—The patient had more or less nausea and vomiting during the last month of gestation, but none at all up to that time.

7. *Primipara.*—Nausea and vomiting all through pregnancy, but invariably in the *afternoon.*

8. *Multipara.*—Morning sickness continued nearly up to the time of examination, about one month before confinement.

9. *Multipara.*—Pregnant with her second child. Had morning sickness steadily up to the time of examination, about four months before confinement, but did not suffer at all from it in her first pregnancy.

10. *Primipara.*—Morning sickness did not commence till

two months before examination (which was made about one month before confinement), and continued up to that time.

11. *Multipara.*—All through pregnancy up to the time of examination, about two months before confinement.

12. *Multipara.*—Continued nearly up to the time of examination, one month before confinement.

13. *Primipara.*—Continued fully up to the time of examination, two months before confinement.

14. *Primipara.*—Nausea and vomiting only in last four months of pregnancy.

15. *Primipara.*—Had nausea and vomiting all through pregnancy, but stated that she also had it for some time before gestation commenced, her physician attributing it to dyspepsia.

In no case were the symptoms sufficiently urgent to call for the induction of premature labor.

Quickening.—Quickening had occurred in all the patients except one, who was five months gone. Sixty remembered the time when they first felt life, and, of these, quite a number could tell the exact day; but 16 were not able to recall the time distinctly. In every instance fœtal movements continued up to the time the examination was made. Of 50 asked at what times the movements were the most distinctly felt, 31 replied at night, or when they were lying down. In one instance they were most noticeable upon rising in the morning, and in another, when the patient was in a sitting posture. In two cases they became exceedingly annoying toward the close of gestation, one of the women complaining that they frequently disturbed her rest at night.

Breasts.—It was frequently noticed that the two mammæ were not symmetrical in appearance. In every instance the character and condition of the nipple were carefully noted, and, as a rule, some hardening application was prescribed as a precaution against trouble during lactation. The mammary appearances were found to vary very greatly, of course, according to the complexion of the patient; the secondary areola particularly being indistinct or altogether wanting in blondes. The changes characteristic of pregnancy were noted as well marked in 68 women, and not well marked in eight. In one case the breasts were not inspected. In addition to the general changes in areolæ and glandular follicles, the peculiar puffiness sometimes seen, which is so valuable a corroborative sign when present, was observed in 10 cases. The following were some of the more noteworthy cases met with in connection with the examination of the breasts:

1. Bridget M., aged twenty-five, primipara. The nipple so depressed as to be entirely hidden from view. It was found impossible to grasp it at all; and the patient stated that she had been accustomed to very tight lacing.

2. Anna B., aged eighteen, primipara. Areolæ fully three inches in diameter, and of a dark-brown color. Glandular follicles quite distinct. Secondary areola not well marked.

3. Mary S., aged twenty-one, primipara. Large pink areolæ; that of the left breast about two inches in diameter, and that of the right about three inches. The latter is also darker in color, as well as larger, than the left.

4. Mary G., aged twenty-two, primipara. When first examined, strongly denied that she was pregnant, and said she had "dropsy." Breasts and nipples of good size. Both primary and secondary areolæ superbly developed; the former about three inches in diameter, and extremely dark for one of her complexion. (She was comparatively fair, with lightish-brown hair.) A general puffiness about the areolæ, and the glandular follicles beautifully shown.

5. Catherine J., aged nineteen, primipara. Areolæ of a delicate pink, though her hair is black and her complexion dark; puffy, and about an inch and a half in diameter. Glandular follicles indistinct. No secondary areola.

6. Matilda C., aged twenty-nine. Had one child ten years ago. Areolæ pink, though her hair and complexion are very dark; an inch and a half in diameter, and quite puffy. Glandular follicles not well shown. No secondary areola.

7. Caroline B., aged twenty, primipara. Areola three and a half inches in diameter, and rather light-colored. (Complexion dark.) Glandular follicles indistinct. Secondary areola beautifully exhibited.

8. Mary H., aged twenty, primipara. Areolæ one and two-thirds inch in diameter, and puffy; of a dark-brown

color, and with a perfectly black rim about the base of both nipples. Glandular follicles indistinct.

9. Mary M., aged nineteen, primipara. Breasts large, and distinctly conical in shape. Nipples quite small. Fine pink areolæ, two inches in diameter, and with the glandular follicles well marked on right side. On the left, the areola is scarcely visible, though the follicles show tolerably well. No secondary areola.

Abdomen.—In the examination of the abdomen, its size, shape, and firmness, were noted, as well as the presence or absence of pigmentary discoloration, and of the peculiar lines produced by the stretching of the cutis. It was also observed whether the umbilicus was depressed, on a level with the surrounding surface, or protuberant, as indicative of the stage of gestation to which the patient had advanced. The following are a few of the more interesting cases in regard to the first points mentioned:

1. *Multipara.*—Examined about a month before confinement. Abdomen large and rather flabby. Considerable tenderness on palpation, which interfered with making out the boundaries of the uterus distinctly; though the fundus was apparently very high. External ballottement easily performed in this case; and evidently a very large quantity of liquor amnii present. From the fœtal heart-sounds it was conjectured that there were twins, and this proved to be the case.

2. *Primipara.*—Examined two days before confinement. Abdomen remarkably conoidal in shape, and also very firm. The apex and hardest part of the uterine tumor is just below the umbilicus, which scarcely rises above the level of the surrounding surface. The fundus extends one finger's-breadth above the umbilicus.

3. *Primipara.*—Examined a week before confinement. Uterine tumor large and very firm. Extends higher up on the right side than on the left. (Child presented vertex, 1st.)

4. *Primipara.*—Examined one month before confinement. Uterine tumor firm and large; the fundus extending three fingers' breadths above umbilicus. Higher on the right side than on the left. (Child presented vertex, 1st.)

5. *Primipara.*—Examined two months before confinement. Uterine tumor firm and symmetrical, except that it extends a little higher on the *left* than on the right side. On the right side, high up, can be distinctly felt what appears to be a knee and leg. (Child presented vertex, 2d.)

6. *Primipara.*—Examined about a fortnight before confinement. Abdomen of good size, and very firm. Fundus extends about three fingers' breadths above umbilicus. The hardest part of the abdominal tumor, feeling like the head of a child, is just above the umbilicus, and seems to vary from right to left. (This was no doubt the breech, as the fœtal heart was heard beating below, and to the left of, the umbilicus, and the child presented vertex, 1st, when born.)

7. *Multipara.*—Examined one week before confinement. Abdomen large and firm. The hardest point is high up on the right side, where something like feet or knees can be distinguished. Fundus extends six or seven fingers' breadths above umbilicus. (Child presented vertex, 1st.)

8. *Multipara.*—Examined somewhat more than a month before confinement. Abdomen larger than in her previous pregnancies. Fundus reaches five or six fingers' breadths above umbilicus. The hardest point of the uterine tumor (feeling like a child's head to the touch) is on the right side, opposite the umbilicus. The fœtal movements can be distinctly felt; particularly at a point corresponding in position to the above, on the left side, where it seems as if the knees or feet were pressing against the hand. (Child presented anterior fontanelle, 4th.)

9. *Primipara.*—Examined two days before confinement. Fundus extends about eight fingers' breadths above umbilicus. Uterine tumor not at all symmetrical, extending higher and bulging laterally more on the left than on the right side. (Child presented vertex, 4th.)

It will be noticed, in some of the above cases, that, where the knees or feet could apparently be felt, the head usually presented on the *opposite* side of the pelvis. It is to be regretted that no systematic attempts were made to determine the position in this connection. In his recent work on "Midwifery," Playfair says: "The facility with which the position of the fœtus *in utero* can be ascertained by abdominal palpation has not been generally appreciated in obstetrical works; and yet, by a little practice, it is easy to make it out. Much information of importance can be gained in this way, and it is quite possible, under favorable circumstances, to alter abnormal presentations before labor has begun." No special observations in regard to fœtal movements on palpation were made, and no efforts were made to excite them; but they were incidentally noticed in 14 cases. In the first case of the above series, where there were twins, the movements were particularly quick, strong, and constant.

In regard to the condition of the umbilicus in the later months of gestation, it was found that in a few cases it did not rise above the level of the abdominal surface, and that in quite a number it was only very slightly protuberant; while in one or two instances it was actually depressed. Still, as a general rule, it did protrude to a greater or less extent. The umbilical areola was noted in 53 cases, and was sometimes found beautifully developed, and as much as two inches in diameter. In one instance it consisted of a number of concentric rings. A line of discoloration from the umbilicus to the pubes was seen in 50 cases, and one extending upward from the umbilicus in 31 cases. It will thus be noticed that the areola was the most constant, and the line below the umbilicus much more so than that above it. Very frequently, however, all three were found in the same patient. In two cases both lines were present, without the areola; in four or five, the line below the umbilicus, without either the areola or the upper line; and in one, the line above the umbilicus alone. In two instances there was a slight pigmentary deposit in the umbilicus itself, without any surrounding areola, but with the line to the pubes; and in one other, simply the deposit of pigment, with neither areola nor line.

Lines due to distention of the skin were observed in 23 multiparæ (often remaining from former pregnancies), and 21 primiparæ. In quite a number of cases they were of a pink or red color, and in one or two very dark; so that the old term of lineæ albicantes would hardly describe them very accurately.

Fœtal Heart-sounds were heard in 72 cases. Could not be distinguished in four, all of whom were examined about four months before full term. In one case there was no examination in reference to this point. The beating of the heart was heard most distinctly on the left side, below the level of the umbilicus, in 40 cases. Of these, 2 were discharged before their confinement; and, of the remaining 38, 30 deliveries were vertex, 1st; 1 was a twin-labor (vertex, 1st, and breech, 1st); 3 were vertex, 5th; 2 were vertex, 2d (patients examined one and three months respectively before their confinements); and 2 were vertex, 4th (patients examined one and two months respectively before their confinements). Of three cases in which the sound was heard most distinctly on the left side, opposite the umbilicus, one was discharged before her confinement, and the labors of the other two were vertex, 1st. In one case, in which the sound was heard most distinctly on the left side, *above* the level of the umbilicus, the labor proved a vertex, 1st. In another patient the heart-sounds seemed equally distinct at two different points (high on the left side and low on the right), so that twins were anticipated. In about two weeks afterward, however, she gave birth to a single premature child (at eight months), which presented vertex, 1st. In this case the sound seems to have been transmitted with remarkable clearness.

There were five cases in which the sound was heard the most distinctly just at the umbilicus, and, of these, one was discharged before her confinement. Two of the labors of the others were vertex, 1st; one, vertex, 2d; and one, vertex, 4th.

Sound heard most distinctly on median line, at and immediately below the umbilicus, two cases. Labors, anterior fontanelle, 1st, and anterior fontanelle, 4th.

Sound heard most distinctly on median line some distance below the umbilicus, one case. Labor, vertex, 1st.

Sound heard most distinctly on right side below level of umbilicus, 11 cases. Of these, two were discharged before their confinement. The labors of the others were as follows: Three, vertex, 2d; one, vertex, 4th; one, vertex, 3d; and four, vertex, 1st. (In the last four cases the patients were examined two and one-half, three, three and one-half, and three months respectively before their confinements.)

Sound heard most distinctly on right side, opposite umbilicus, three cases. One of these was discharged before her confinement, and in the other two the labors proved vertex, 1st. (In both, considerable time elapsed between the examination and confinement.)

Sound heard most distinctly on right side, above the level of umbilicus, five cases. One discharged before her confinement. The labors of the others were as follows: Two, vertex, 2d; one, vertex, 1st (examined three months before confinement; and one twin (vertex, 1st, and vertex, 5th). In the last case, fœtal heart-sounds could also be heard, though with less distinctness on the left side, low down. It is the case marked No. 1 in the last series given above.

I was not the attending accoucheur in a number of the above cases, though all the women were personally examined by me previous to confinement. Where I did not attend the patient myself, I have depended on the hospital register for the notes of the labors, and some of the House-staff may possibly have been careless in always noting the position accurately. In some cases, also, the changes of position may have occurred between the examination and the termination of pregnancy, and we have the authority of Dr. Playfair for saying that such changes are more common than is generally believed to be the case. No predictions as to the sex of the fœtus *in utero* were attempted from the number of heart-beats in a minute. In only one instance, indeed, were they counted, and in this they amounted to 140. The child, if I remember rightly, was a girl. Frankenhausen gives the average number of beats per minute at 124 for the male and 144 for the female; while Steinbach puts these figures at 131 and 138 respectively.

No special observations were made in regard to the uterine *souffle*, but it was incidentally noticed in 12 cases—most of them beautifully marked—nor was any attempt made to distinguish the *funic souffle* of Kennedy. Before leaving the subject of the examination of the abdomen, I may also mention, that at that time I had not had my attention directed to the intermittent contractions of the uterus which Braxton Hicks has brought prominently before the profession, and which Dr. Playfair has as yet never found wanting in any genuine case in which he has looked for them.

Per Vaginam.—Old lacerations of the cervix uteri were noted in seven cases. These were, of course, all multiparæ, though one of the patients claimed to be pregnant for the first time. I am among those who believe that Dr. Isaac E. Taylor has successfully demonstrated the erroneous opinions of Cazeaux, Baudelocque, Ramsbotham, and others, in regard to the cervix during pregnancy, and that actual shortening never takes place. The normal cervix, whether the uterus is impregnated or not, differs very greatly in different individuals; and it was noted as feeling long to the touch in 40 cases (21 multiparæ and 19 primiparæ), of moderate length in 19 (6 multiparæ and 13 primiparæ), and short in 12 (4 multiparæ and 8 primiparæ), the rest not stated. In this classification a projection of more than half an inch into the vagina is regarded as long, of about half an inch as moderate, and of less than half an inch as short. It was found to be decidedly softened in 47 cases (23 multiparæ and 24 primiparæ). In some of these (among the primiparæ as well as the multiparæ) the cervix was unusually long, and in some it was remarkably soft, a long time before parturition. These facts, I think, plainly go to show the fallacy of the statements of Montgomery, and most of the other English authorities, in regard to the changes which take place in the cervix. Leishman,[1] indeed, says that they may be regarded as correct in general for primiparæ, but not for multiparæ. "This method of examination" (*per vaginam*), "therefore," he adds, "enables us not only to recognize the stage of pregnancy, but also to distinguish between first and subsequent pregnancies—due regard being had to the manner in which the cervix is developed in the two classes of cases."

Playfair, on the other hand, shows that they cannot be relied upon either in the case of primiparæ or multiparæ, and copies Montgomery's series of drawings illustrating the changes in the cervix at different periods of gestation, in order to demonstrate their incorrectness.

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[1] Glasgow edition, pp. 167 and 168.

In this connection I append a few cases:

Multiparæ.

1. (Examined three months before confinement.) Cervix half an inch long.

2. (Examined three months before confinement.) Cervix half an inch long, and soft.

3. (Examined seven weeks before confinement.) Cervix three-quarters of an inch long.

4. (Examined one month before confinement.) Cervix an inch in length, and firm.

5. (Examined three and a half weeks before confinement.) Cervix about an inch long, and soft.

6. (Examined three weeks before confinement.) Cervix nearly an inch long, and soft.

7. (Examined three weeks before confinement.) Cervix an inch in length, and soft.

8. (Examined two weeks before confinement.) Cervix three-quarters of an inch long, and much softened.

9. (Examined five days before confinement.) Cervix an inch long, and soft.

10. (Examined four days before confinement.) Cervix two-thirds of an inch long; somewhat softened.

11. (Examined one day before confinement.) Cervix long and flabby.

Primiparæ.

1. (Examined four months before confinement.) Cervix about half an inch long, and unusually soft.

2. (Examined three months before confinement.) Cervix three-quarters of an inch in length, and moderately firm.

3. (Examined two and a half months before confinement.) Cervix about an inch in length, and firm.

4. (Examined two and a half months before confinement.) Cervix three-quarters of an inch long, and tolerably firm.

5. (Examined two months before confinement.) Cervix firm, and about two-thirds of an inch in length.

6. (Examined two months before confinement.) Cervix three-quarters of an inch long; quite firm.

7. (Examined two months before confinement.) Cervix three-quarters of an inch long, and soft.

8. (Examined two months before confinement.) Cervix two-thirds of an inch in length, firm, and of small diameter.

9. (Examined two months before confinement.) Cervix an inch long, and quite firm.

10. (Examined two months before confinement.) Cervix soft, but quite long.

11. (Examined one and a half month before confinement.) Cervix three-quarters of an inch long; rather soft.

12. (Examined one and a half month before confinement.) Cervix an inch long; quite firm.

13. (Examined six weeks before confinement.) Cervix an inch in length, and firm.

14. (Examined one month before confinement.) Cervix about two-thirds of an inch long; quite soft.

15. (Examined one month before confinement.) Cervix two-thirds of an inch in length, and soft.

16. (Examined one month before confinement.) Cervix about an inch long; moderately firm.

17. (Examined three and a half weeks before confinement.) Cervix about two-thirds of an inch long; quite soft.

18. (Examined three weeks before confinement.) Cervix soft, and three-quarters of an inch long.

19. (Examined three weeks before confinement.) Cervix soft, and two-thirds of an inch long.

20. (Examined two weeks before confinement.) Cervix half an inch in length, and rather soft.

21. Examined two weeks before confinement.) Cervix half an inch in length; moderately soft.

22. (Examined two weeks before confinement.) Cervix two-thirds of an inch in length, and somewhat softened.

23. Examined nine days before confinement.) Cervix half an inch long, and quite soft.

24. (Examined six days before confinement.) Cervix about one-third of an inch in length.

25. (Examined four days before confinement.) Cervix three-quarters of an inch in length; considerably softened.

26. (Examined two days before confinement.) Cervix softened, but still quite long.

The authorities usually teach that in primiparæ, during gestation, both the external and internal orifices of the cervix are closed, the cavity being spindle-shaped in outline; while in multiparæ the *os internum* is nearly closed, but the *os externum* wide open. This may be true, perhaps, in a majority of instances, but there are a very large number also in which it is not. In 41 of the 77 cases examined by me, the external os was found quite patulous, and in at least 15 to such an extent that the finger could easily be introduced into it. Out of the 41, 25 were multiparæ and 15 primiparæ. In 19 others (5 multiparæ and 14 primiparæ), the os is noted as slightly patulous, in 4 (all primiparæ) as distinctly not patulous, and in the remaining ones its condition is not stated, though the inference would be that it was undilated.

From the books, one would suppose that the *os tincæ* would always be found in a certain definite position, bearing a certain relation to the period of gestation to which the patient may have advanced; but there are so many exceptions to this (its situation varying greatly in different individuals), that the rule is of little practical value. This is shown in the following cases:

In two women, examined four and three months respectively before confinement, the os was found unusually low down; while in a third, examined at the latter period, it was unusually high up.

Out of six cases, examined from six weeks to two months before confinement, the os was high in four and low in two.

Out of seven cases, examined from two and a half to four weeks before confinement, the os was high in four and low in three.

Out of four cases, examined from four to nine days before confinement, the os was high in two and low in two.

This series of examinations was made just before Graily Hewitt read his paper on "Vomiting in Pregnancy" before the Obstetrical Society (*see* "Transactions," vol. xiii.), in which he claimed that obstinate vomiting is due to a flexed condition of the uterus, the compression of the tissues of the uterus at the seat of flexion constituting the irritation which gives rise to the vomiting. After Dr. Copeman, of Norwich, brought out his paper in the *British Medical Journal* (May 15, 1875), in which he recommended artificial dilatation of the os uteri by the fingers as a cure for obstinate sickness in pregnancy, he published a short article in the same journal, whose aim was to explain the true *modus operandi* of this treatment. "In the second case," he remarks, "Dr. Copeman says the uterus was 'anteverted.' He gives no account of its condition in the other two cases, so far as flexion or version is concerned. Now, it is my belief that all three cases were alike; that there was, or had been, acute flexion in each case, and that the dilatation operation of Dr. Copeman effected good, and removed the vomiting, by reason of its also relieving the cramped, confined condition of the cervix. On the supposition (which I make as regards two, but which is a fact in one of the cases, according to Dr. Copeman) that there was flexion in all three, the os must have been far back, and, in order to dilate it, it must have been pulled forward. The dilatation would and must necessarily imply a righting of the os and lower segment of the uterus, and a consequent unbending of the organ. . . . It is customary with obstetric authors to speak of the gravid uterus as being naturally anteverted in the first part of pregnancy. This is a statement which requires important qualification. There are degrees of anteversion. It is one thing for the body of the uterus to be rather easily felt by the touch through the anterior wall of the vagina, as it is undoubtedly in ordinary cases; but it is another for the roof of the vagina to be actually depressed by the abnormal descent of the enlarged body of the uterus when it is anteflexed. In the latter case, the os is always further back than usual, and, in marked cases, the body of the uterus is for the time completely jammed in the pelvis. It is under these latter circumstances that obstinate vomiting most generally occurs." Dr. Hewitt explains cases in which the vomiting persists as late as the eighth month, on the supposition that the tissues of the uterus at the seat of flexion are sometimes left in a diseased state, being stiffened and unduly resistant, and thus the irritation is kept up. Dr. Copeman's treatment, he says, would undoubtedly tend to remove this stiffening and constraint. In connection with this interesting subject, I may mention that, in one of the most persistent cases of vomiting noted in the whole series, the uterus was found markedly anteverted, the os being very far back, and looking directly toward the hollow of the sacrum. Nothing is said in my notes of the position of the organ in other similar cases, except that in two of them the os was found very unusually high up. On the other hand, in a case in which the uterus is noted as distinctly anteverted (though to a less pronounced degree than in the above), the patient suffered from nausea and vomiting during only the first few weeks of gestation.

No observations were made in regard to the changes in the color of the vagina produced by pregnancy, nor in regard to the vaginal pulsation pointed out by Osiander.

Urine.—Out of 60 cases in which the urine was tested (in some instances several times), albumen was found in only one. In 17 cases the record of the urinary examination has been lost. In the case in which the albumen was found, the patient, a primipara, did not come under observation until a fortnight before her confinement. There was no œdema whatever, but the urine contained more than one-fifth part albumen by bulk. She was put upon active treatment, but convulsions set in at the beginning of labor. They were controlled by chloroform, however, and rapid dilatation (by Barnes's dilators) and delivery were successfully accomplished; but a few hours afterward they returned with increased violence, and on the following day she died, in a state of profound coma. Venesection was not resorted to in this case, but the patient lost a large quantity of blood during and after parturition from a laceration of the cervix, due, I think, to the cicatricial character of its tissue, resulting from repeated syphilitic ulcerations, for which she had previously been under treatment in the venereal wards of the hospital. The autopsy revealed intense congestion and active inflammation of the kidneys. When this patient first came under observation, it would probably have been too late to accomplish much good by the induction of premature labor; but in such a case, at the present time, I should try it at all events.

Two other cases of interest may be mentioned in this connection. The first was that of a primipara, who during the last three months of pregnancy suffered from dyspeptic symptoms, and very marked œdema of the hands, feet, and legs. I tested the urine with special care several times, the last occasion being about six weeks before her confinement, but found not the slightest trace of albumen. No note of the microscopical appearances has been preserved. At the time of the beginning of labor, however (which did not occur until after my term of service had expired), the urine was found to be one-third albumen. Her labor was very tedious and difficult, craniotomy being finally necessary; but no tendency to convulsions showed itself. After delivery, her condition was very good for a short time, when suppression of urine occurred, and two or three days afterward she died in uræmic coma. At the autopsy an advanced state of nephritis was found.

The other case was also that of a primipara. During the last four months of gestation she suffered a good deal from frontal headache, with a tendency to vertigo at times; and in the five weeks immediately preceding parturition she had three convulsive attacks, during which, according to her own statement, she was entirely unconscious. These were probably hysterical in character, though they bore a strong resemblance to epilepsy in many respects. At these times she complained of a "swelling up of the throat," and it was found that the thyroid gland was in reality considerably enlarged. She passed large quantities of light-colored urine at frequent intervals, but it contained no albumen. Several careful examinations of it were made, the last just a week before her confinement. She had no trouble whatever during labor, except slight feverishness toward its close; but this soon passed away.

No special observations were made in regard to kystein, but its presence was almost invariably noted on the surface of the urine that had been permitted to stand after having been tested for albumen.

No microscopical examination of the blood was made in any case.

Subsidence of the Uterine Tumor preparatory to Labor.—In 62 cases, no note was made on this point. Of the remaining 15, it was stated by the patients to have occurred in 10, and not to have occurred in 5 cases. There is a vast amount of uncertainty about such a matter, in regard to which we have to rely to so great an extent on patients' statements, which are practically valueless, as is seen in the following instances:

One woman, who was examined October 7th, and at that time reported subsidence to have commenced two weeks previously, was not confined till November 29th.

Another, who was examined November 17th, and reported subsidence to have commenced one week previously, was not confined till December 29th.

While a third, who was examined November 8th, and said that she had not noticed subsidence at that time, was confined November 17th.

The sinking of the gravid uterus in the abdomen is supposed to begin about the middle of the ninth month, when the organ has attained its full size; yet in only three of the above 10 cases were the patients within three weeks of confinement when subsidence commenced (according to their own statements); and in one of these the woman left the House before confinement, though its expected time was within the three weeks.

Prediction of the probable Time of Labor.—This was always made in every case, and was based partly on the patient's account of herself, and partly on the condition of the abdomen, os, cervix, and other parts; but I need not dwell upon this point. Sometimes the time was hit very closely, and sometimes the prediction was quite far out of the way, on one side or the other. I may mention incidentally, however; that the statements of patients in regard to the time of cessation of the menses were often extremely unreliable. Thus, one, who said that they disappeared "about Christmas," was not confined till the 14th of December following.

Synopsis of Labors.—Nine cases were discharged before confinement. In the 68 confined in the House, there were two twin-labors, which made the number of children born 70. Of these, 67 were vertex presentations, 2 anterior fontanelle, and 1 breech. In one of the vertex presentations the position was unknown, as the child was born before the arrival of the accoucheur, 46 were 1st, 9 were 2d, 1 was 3d, 5 were 4th, and 5 were 5th. In two of the cases of 4th position, craniotomy was performed. In the first, posterior rotation took place, and there was some deformity of the pelvis, the arch appearing unusually narrow, and the antero-posterior diameter diminished. In the second case, forced anterior rotation was made with the forceps, but here also there was pelvic deformity, the promontory of the sacrum projecting to an abnormal degree. In one of the other cases, the following note was made by the late Dr. John S. Parry, who was the consulting accoucheur: "In this case an error was made in the diagnosis, and the forceps were applied, one blade on the occiput and the other on the face, and in this position it was born. The head was supposed to be in the 1st position, with the occiput under the arch, as a triangular fontanelle was felt in that position. This proved, after the delivery of the child, to be an abnormal supra-temporal fontanelle, triangular in outline, and with three sutures running into it; while the anterior and posterior fontanelles were so obscured by the exceedingly large *caput succedaneum*, that they could not be plainly distinguished even after birth. Under the circumstances, therefore, the only conclusion at which we could have arrived was, that it was a 1st position, with the occiput under the arch." In consequence of this mistake, the face was quite badly mutilated. According to Playfair, and other authorities, however, it is useless to attempt to apply the blades of the forceps to the sides of the child's head, even at the inferior strait..

In the remaining two cases, spontaneous anterior rotation took place; but in one of them, before the head pressed fairly down upon the os, already dilated to a considerable extent, I succeeded in introducing my hand into the uterus (which was contracting very feebly), and, pushing the head up somewhat from the os, with some difficulty got the occiput in front. As soon as my hand was withdrawn, however, the head returned to its original position; whereupon I repeated the manœuvre, and with a like result. But by this time the uterus was acting with great vigor, and the head soon being extruded from it, and beginning to engage, rotated anteriorly spontaneously. In all the five cases of 5th position, anterior rotation took place spontaneously.

One of the anterior fontanelle positions was a 1st, and the other a 4th. I attended both cases personally, and, in regard to the first, made the following notes:

The membranes ruptured at the very commencement of labor. I first saw the case when the os was about the size of a 25-cent piece. By another hour it had dilated pretty thoroughly, but the head did not seem at all disposed toward further flexion. As it advanced through the cavity of the pelvis, it remained the same in this respect, nor was there any attempt at rotation. I endeavored to assist both flexion and rotation with the fingers and vectis, and several times succeeded in bringing the vertex down; but it always slipped back again. After there had been quite a long delay at the inferior strait, I applied the Davis short-curved forceps, and delivered. In the case of 4th position of the fontanelle, the labor terminated spontaneously as a vertex, with anterior rotation.

In the first case of twins, one child presented vertex, 1st, and the other breech, 1st. They were premature (in eighth month), and weighed 4 pounds 6 ounces and 4 pounds respectively. In the second case, the first child presented vertex, 5th, and the second, vertex, 1st. Labor occurred at full term, and they were the largest twins up to that time born in the Philadelphia Hospital, weighing 7 pounds 5 ounces and 7 pounds 7 ounces respectively.

Early Rupture of Membranes (when the os was still undilated) was noted in four cases.

Rigid Perinæum noted in two cases.

Application of the Forceps made five times, besides in the two cases in which craniotomy was finally necessary, as mentioned above. The cases were as follows:

1. At inferior strait. Large head and imperfect flexion.
2. For inertia of the uterus, the head resting on the perinæum. This was the second child in the second case of twins, and there was considerable loss of blood from the inertia.
3. At inferior strait. The case of anterior fontanelle, 1st position, above described.
4. For rigid perinæum.
5. At inferior strait. The case of 4th position of the vertex mistaken for 1st.

Ergot.—Noted as having been given in two cases (before the third stage of labor), neither of which was attended by myself. The first was the case of twins, in which inertia followed the birth of the first child. No efficient contractions were set up by it, and the second child was still-born; though this was attributed to probable premature detachment of the placenta. In the second case, an ounce of the wine of ergot was given within an hour and a half, to hasten labor (the second stage was but little over an hour); and the child, a remarkably fine one, weighing 10½ pounds, was still-born. Still, the ergot may have had nothing to do with the latter result, as it was noted that the infant was quite blue at birth, and the autopsy revealed an unusually large *foramen ovale.*

Funis.—In no less than 20 cases the cord was wound once around the child's neck—showing the importance of always making an examination for this. In one case, it was wrapped twice about the neck; and in another, tied in a knot, and with a loop around the thigh. One funis was a yard in length.

Position of the Child's Hand.—In four cases, it was noted that the hand presented by the side of the head, and, when pushed up, it was very apt to return to this position.

Placenta.—In four cases, the placenta was attached so low down as to apparently constitute partial placenta prævia, yet in none of them was there hæmorrhage during either gestation or parturition. In one case, the placenta was almost a battledore, the attachment of the funis being less than an inch from its margin; and in another there was found a distinct round placental lobe in the membranes, somewhat more than an inch in diameter, and at some distance from the placenta, though it was connected with the latter by two or three blood-vessels. There were three cases of adherent placenta.

Post-partum Hæmorrhage occurred in seven cases (exclusive of the one with puerperal convulsions, in which there was hæmorrhage from laceration of the cervix), and none of them were under my care. I do not say this in any spirit of boasting, but, as Dr. Playfair says, in his work (page 273, American edition): "It is a curious fact, that post-partum hæmorrhage is much more common in the practice of some medical men than in others; the reason being, that those who meet with it often are careless in the management of their patients immediately after the birth of the child." The Credé method of delivering the placenta, though, at the time these labors occurred, not held in such high estimation as at the present, was practiced to some extent; but I attribute the immunity from hæmorrhage mainly to three measures which I invariably employed, and which, to my certain knowledge, were not always practiced by the other accoucheurs. These were: The exhibition of ergot immediately after the birth of the child, and again after the delivery of the placenta; the introduction of the whole hand, or at least the fingers, into the uterus, as soon as the placenta had been expelled; and external manipulation over the fundus until the binder was applied. I am aware that objections have been urged against the second of these means, but, in a considerable experience with its use, I have never seen the slightest bad results therefrom; and I must say that I have always left my patients with a more comfortable feeling of mind after having employed it. Indeed, the only case of post-partum hæmorrhage that has occurred in my practice was one in which I omitted the procedure. Far be it from me, however, to deny that cases are occasionally met with in which hæmorrhage is unavoidable, in spite of all the precautions that may be taken against it.

Puerperal Convulsions.—One case, which has been already spoken of.

Puerperal Mania.—One case. It was found necessary to have the patient removed to the insane department, where she afterward died.

ART. III.—*Subcutaneous Injuries of the Biceps Brachii; with two new cases and some historical notes.*[1] By ARPAD G. GERSTER, M. D., Surgeon to the German Dispensary, New York City.

> "Laudat digitosque, manusque
> Brachiaque, et nudos media post parte lacertos."
> —*Hyrtl's quotation from Ovid.*

LAYMEN know best of all muscles the biceps. Its growth and development are a constant source of tender care and anxiety to athletes, learned or illiterate; and equally to the oarsman, the swordsman, the ballplayer, and the pugilist. One of its two heads originates at the upper margin of the glenoid cavity of the scapula. The statement is found in older anatomical works that the tendon of the long head of the biceps is a continuation of the cartilaginous margin of the glenoid cavity. This, however, has been found to be erroneous, since experiment has shown that the tendon could be wrenched off its point of insertion without injury to the marginal cartilage.[1] Encased in its proper sheath the tendon proceeds from this point of insertion outward and downward, keeping in close contact with the articular surface of the head of the humerus, until it reaches the groove formed by the two tubercles of this bone. Here it emerges from the articular cavity, accompanied by a vaginal process of the capsules which extends as far as the insertion of the latissimus dorsi muscle. The shorter head, originating in unison with the coraco-brachial from the coracoid process of the scapula, extends to about the middle of the humeral region, where the two heads unite in one powerful mass of muscle, known as the belly of the biceps. Further below a sudden attenuation of the muscular body is to be seen, resembling somewhat the tail-end of a fish or lizard; therefore, the ancients called it "lacertus," and to this day it is known in Italy as "pescetto." After having delivered a strong ligamentous band to the antibrachial fascia, called the *lacertus fibrosus*, the tendon attaches itself to the tuberosity of the radius.

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[1] Translated from a paper read before the Society of the Physicians and Surgeons of the German Hospital and Dispensary, New York, October 12, 1877.

It is well known what an important guide the biceps is to the surgeon in many operations about the arm. Viewed physiologically it also appears to be of great consequence, being, together with the brachialis internus, the flexor of the cubital joint.

Before entering upon the proper subject of this paper, permit me to mention the curious circumstance that the biceps sometimes becomes a triceps or a quadriceps. Pietsch has seen and described a biceps with even five heads.[2] Among these forms of excess of number, there is one specially deserving of mention. It has been observed that one of the accessory heads of our muscle sometimes takes its origin on the anterior surface of the internal intermuscular ligament. Such being the case, the brachial artery must pass through this muscular band, and the typical rule for ligating the vessel will have to be modified accordingly.

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[1] J. Hyrtl, "Topografische Anatomie," Bd. ii., p. 332.

[2] Roux's "Journal de Méd.," t. 31, p. 245.

Having disposed of these preliminaries, I shall invite your attention *first* to the subcutaneous rupture of the tendons and belly, and *secondly*, to the dislocation of the long head of the biceps.

It is a singular fact that, up to the year 1781, we find no mention recorded, in either the literature of medicine or surgery, of the subcutaneous rupture of any one muscle or tendon. Strange it is, that lesions generally accompanied by grave functional and other symptoms should have escaped the notice of such keen observers as many of the old surgeons are known to have been; but such is the case. The first who observed and inquired into the nature of muscular rupture was a Frenchman, Rousille Chamseru, who in 1781 read a dissertation upon this subject before the Société Royale in Paris. It was never printed. Jean Sédillot, the renowned surgeon of those days, seems to have been much interested in the subject, collected many facts relating to it, and published a Latin opuscle under the title "De ruptura musculari," in 1786, which after thirty-six years was reprinted in French version. The subject, thus having been brought to the notice of the profession, was revived at different times by different authors, whose number, as will be seen by the affixed enumeration, is not very great.

Taken on the whole, subcutaneous ruptures of muscles and tendons are comparatively rare injuries. We must here carefully discriminate between rupture occurring in a healthy tissue, produced by means of great mechanical force, direct or indirect, which is κατ' ἐξοχήν a traumatic injury; and rupture of a diseased muscle or tendon, which occurrence is not uncommon in the latter stages of grave systemic disorders, as for instance in typhoid fever, where the break, due to fatty degeneration of the tissues, is apt to take place on such trivial occasions that Prof. Volkmann, of Halle, proposes to call it "spontaneous rupture." We are concerned chiefly with the former class of cases; they almost always occur in healthy, robust individuals, and mostly admit of direct surgical treatment.

The division of a muscle is either partial or total; if it takes place in the belly it is usually complete. The ratio of the frequency of injury to muscle and tendon respectively is as 2 : 3. Nélaton[1] computed 49 recorded cases of muscular division, in 14 of which the muscle was severed across the belly; in 29 the division took place either at the line where muscle and tendon unite, or simply in the tendon alone; and in 6 the place of injury was unmentioned. Thus we infer that the tendon gives way more easily than the muscular substance in the ratio of 3 : 2.

The surface of the recently-torn muscle presents a ragged, uneven appearance, the two rudiments being more or less retracted, and the more muscular portions forming soft flabby swellings. The sheath of the muscle may be either uninjured, partially torn, or completely severed. The interstice between the two fragments will be found filled with blood, more or less in quantity; sometimes (in cases where a larger muscle branch of an artery has been torn) the amount is enormous.

The surface of a broken tendon is generally smoother than that of a broken muscle, and the hæmorrhage is less copious. On the whole, things are here very similar to, if not identical with, the condition after tenotomy. The greatest portion of the effused blood is returned to the circulation by means of the lymphatics; the clots formed undergo a process similar to solution, and are resorbed.[2] Many blood-corpuscles perishing, their hæmoglobine permeates the surrounding tissues, discoloring them in the characteristic manner. Most of this also becomes resorbed, and only a few granules of shelly hæmatine remain here and there, harmlessly embedded in the tissues.

Now permit me to show how the breach is repaired: The process of resorption being completed in four to five days, the elements on and around the ruptured surface become rapidly surrounded, and, so to say, walled in by migrating white blood-

[1] "Elements de Pathologie Externe," t. i., p. 575.

[2] H. Cordua, "Resorptionsmechanismus der Blutergüsse," Berlin, 1877.

corpuscles, which issue from the perimysial vessels; this elementary tissue becomes vascularized, and the hiatus is filled up by new connective tissue. We see that the course of reparation commences from the preëxisting connective elements and their vessels, viz., the perimysium. In a later stage we observe that the muscular elements proper also join in the reproductive activity. The protruding primitive muscular fibres rapidly degenerate; the contractile substance coagulates, breaks up by many fissures into lumps and laminæ of larger size, which, by subdivision, finally become a molecular detritus readily resorbed by the lymphatics. At the point where this degeneration ceases, we observe a rapid growth and multiplication of the muscular nuclei, which is quite prodigious.

The possibility of a new formation of muscular fibre in the cicatrix after rupture was denied up to a recent date by competent investigators.[1] But the following observation of many trustworthy practioners could not be discredited, and required explanation: the fact was well ascertained that, after grave and extensive muscular injuries followed by prolonged suppuration, the muscles were perfectly restored as regards both size and function. Autopsy having been permitted in such cases of healed muscular injury, the contractile fibres were found very little, if at all, altered; and, search being made for vestiges of an injury, no cicatrix whatever could be seen. The experimental proof of the fact that regeneration of the muscular fibre is possible, and that it quite commonly takes place, was first maintained in 1863 by C. O. Weber ("Ueber die Neubildung quergestreifter Muskelfasern, u. s. w., nach Verletzungen." *Centralblatt für med. Wissensch.*, 1863, No. 43. Virchow's "Archiv," No. 37), who observed in the cicatricial tissues of living subjects during the second week of repair the appearance, beyond doubt, of slender fusiform elements; these soon became transversely striated, their nuclei dividing and subdividing, their body lengthening, until these newly-formed elements resembled fast-growing fœtal muscular fibres.[2] The hiatus of the broken muscle being thus filled up, the cicatrix contracts, the fragments approach, and, after the lapse of due time, only a slender tendinous inscription is to be found in place of the wide, deep gap, in which could have been embedded three or four fingers.

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[1] F. A. Zencker, "Ueber Veränd. der willk. Muskelf. im Typhus," Leipsic, 1864. C. A. Daggott, "Ueber Regeneration der quergestreiften Muskelfasern, u. s. w.," Dissert. inaugur., Königsberg, 1869.

[2] R. Volkmann, "Billroth and Pitha's Handb. der Chirurgie," II. Bd., 2 Abthlg., p. 868.

I formerly mentioned that the disruption of muscle or tendon must not always be complete. There are cases where the tendon of the long head is but partially lacerated, or in which it is intact, its sheath only being injured. These cases have been for a long time the diagnostic stumbling-blocks of many surgeons. The changes in the outward shape of the shoulder are very slight indeed in these cases; you find, perhaps, a scarcely noticeable synovial effusion in the joints, sometimes an ecchymotic streak in the skin of the frontal part of the shoulder; but the functional disturbance is very marked, in fact it seems to be out of proportion with the visible anatomical changes. The patient is unable to use his arm, and endeavors with earnest care to keep it in the same well-flexed condition as if the humerus were broken.

Passive extension, as well as flexion, of the pronated forearm, causes some pain; *active* extension and flexion in the same position possible, but a good deal more painful; *active flexion* of the forearm in *supination*, quite impossible. By pressing the finger tips against various points of the humerus, palpation along the bicipital sulcus, especially between the two tubercles, elicits marked signs of distress.

A corresponding example of this I saw about a year ago in Dr. R. Hesse's office, Brooklyn, in the person of a splendidly developed, squarely-built carpenter (age about thirty-five). He had fallen down the steep staircase of his workshop; as he struck the ground heavily, he instantly felt something snapping, immediately followed by a stinging pain in the left shoulder. Swelling and ecchymosis along the course of the bicipital tendon rapidly ensued. I saw him first about a week after the accident; active and passive extension possible, but somewhat painful; passive flexion same; active flexion in pronation difficult, but possible; active flexion in supination absolutely impossible, even the attempt producing intense pain at the upper bicipital region. Ecchymosis, which before was marked, almost gone. Since even most careful palpation could not prove breach of continuity of the tendon, or signs of dislocation in the shoulder joint, diagnosis was: *Laceration of the tendon, and the corresponding part of the sheath of the long head of the biceps.* The arm was restored to usefulness by the aid of a simple sling.

I beg to direct your attention to two points in this case. First, the remarkable difference between pronation and supination during active flexion observed in the functional capacities of the biceps. To this I shall refer later. The second point of interest is merely historical, but deserving of mention. Older surgeons (Stanley, Bromfield, Knox, Monteggia, for instance), up to the middle of this century, diagnosed as dislocation of the long head of the biceps cases similar to the one related. They supposed that the tendon left its groove, and slipped upon the major tubercle. True, none of them ever found the tendon actually in its dislocated condition, but they assumed that a spontaneous reduction took place by a rotation of the humerus, before a competent judge could ascertain the nature of the injury. William Cooper[1] and Boerhaave accepted the possibility of such an injury. Fergusson expresses himself cautiously on the subject. Bardeleben,[2] Pitha, and Volkmann deny its existence, referring to a series of exhaustive articles in the *Gazette Hebdomadaire* (2 Sér., iv. [xiv.], 21, 23, 25, 1867), written by Jarjavay, which completely disposes of this "mysterious" luxation, as Prof. Pitha sarcastically calls it. Pouteau expressed similar doubts long previous to this, arguing very correctly that energetic muscular contractions would be more likely to rupture than to dislocate the tendon. John Soden, Jr., of Bath (through Mr. Partridge), presented before the Royal Society a case of supposed dislocation, in which, after the patient's death, dissection was made. The tendon, being found on the tuberculum minus, appeared really to be out of its place, and thus seemingly proved the assertion of those advocating luxation. The report of the case and a woodcut representing it were published in due time in the "Med.-Chir. Transactions" (vol. xxiv., page 212).

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[1] A. D., 1694, after M. Littré, "Œuvres d'Hyppocrate," Paris, 1844, t. iv., page 22.

[2] "Chirurgie," Bd. ii., page 872 (edition 1871).

Malgaigne soon protested against the explanation thus given, showed that the seeming displacement toward the tuberculum minus was due to an abnormal widening of the tendon's sheath, and that not the tendon, but the bone had left its place; therefore it must follow that the injury was a dislocation of the head of the humerus, rather than a luxation of the tendon. So much is true, that no surgeon ever saw the said tendon in *statu luxationis*, and that those who made a diagnosis of dislocation concluded a *posteriori* from the condition consequent upon, or found after, a supposed dislocation. It is very improbable, to say the least, that an inward or outward rotation could force the tendon from its sheath. Supposing, however, that a forced rotation inward were sufficient to rupture the sheath, luxation would not necessarily be the consequence, since it is obvious that, to be luxated, the tendon must slip upon the tuberculum majus, which could not happen without first rupturing the capsular insertion *below*, and then also the tendon of the supra-spinatus *at* the tubercle. The force capable of achieving this must be so great that its application would produce rather a disruption of the bicipital tendon, a dislocation of the joint, or both, than a single displacement of the tendon.

Jarjavay, not satisfied with proving the non-existence of the mentioned lesion, gives the history of five cases which he observed himself, and regarded as sufficient to warrant the following explanation. Below the acromion is found a *bursa mucosa*, which can easily be exposed to view by taking away the upper portions of the deltoid muscle. This follicle, when contused or irritated by a trauma affecting the joint, becomes inflamed, enlarged, and painful. He accepts this as the cause of functional inability hitherto observed in cases of supposed dislocation of the bicipital tendon. This undoubtedly holds good for some of his cases, as well as others, but certainly does not cover the whole ground, since it fails to account for cases like the one before related, in which the cause of the disturbance is a simple sprain or laceration of the vagina of the tendon. From all this we may draw the following conclusions:

First, that the luxation of the long head of the biceps never was observed on the living subject in its uncomplicated form, and that its existence is very doubtful, although conventionally accepted by and reprinted in older manuals of different surgeons. *Secondly*, in cases presenting compound injuries of the joint and its osseous components, accompanied by rupture of the articular capsule, the inevitable displacement of the tendon is not of much consequence as to the whole injury, and therefore cannot be ranked as a pathological phenomenon of independent standing.

As formerly mentioned, we do not intend to draw the so-called spontaneous ruptures of muscle or tendon into the scope of our inquiry; yet we cannot neglect to notice, in passing, a certain condition of the tendon of the long head of the biceps, not characterized by fatty degeneration of the microscopical elements as is sometimes observable after typhoid fever, but made noticeable by a roughly-anatomical waste of the tendon, brought about by undue friction.[1] Certain tendons and their sheaths, especially the ilio-psoas and the long head of the biceps, often become inflamed in consequence of a traumatic lesion, such as a sprain for instance. Tendo-vaginitis sicca, or as Volkmann calls it, *tenosinitis crepitans*—a condition similar to pleuritis sicca—is developed; both the tendon and its sheath gradually lose their polish and smoothness, the synovial fluid soon disappears from the crepitating sheath, the tendon grows thinner daily in consequence of the increasing friction, until, overtaxed by a somewhat energetic contraction, it snaps off.

The cause of this as well as of any other muscular rupture is either a sudden over-exertion—a force trying to stretch the hardened, well-contracted muscle—or a direct blow, administered with a stiff bar or stick ("arrachement" and "coup de fouet"). Hueter's student ruptured his biceps while small-sword fencing;[2] Sanson's case, by trying to hurl a heavy body;[3] Uhde mentions a soldier hurt while at bayonet exercise;[4] and recently I also had the fortune to see a rare and instructive case belonging to this order of injuries at the German Dispensary (during the service of Dr. I. Adler), the cause of which was the attempted lifting of a wine cask.

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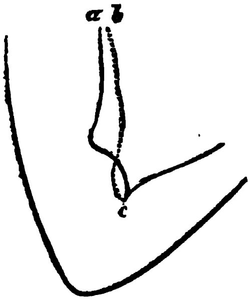
[1] Follin, *loc. cit.* [2] *Loc. cit.* [3] *Loc. cit.* [4] *Loc. cit.*

The belly of the muscle was totally severed. Such a case as this being of rare occurrence, I shall give an exact description of it, and the particulars will serve to elucidate the symptomatology.

W. H., a robust, powerful man, æt. 60, by trade a cooper, presented himself, August 18, 1877, at the German Dispensary (Surgical Department) of this city, and gave the following account of himself: Had not been ill for many years; on August 10th, while attempting to lift a heavy wine cask, he felt a stinging pain, accompanied by the sensation of something parting in the right shoulder and arm, and his limb dropped down powerless. Considerable swelling and suggillation ensued, much pain followed, to soothe which the patient carefully supported the injured extremity with his other hand. A single glance at the bicipital region was sufficient to establish the diagnosis (Fig. 1). Where the belly of the muscle ought to have been, we found a depression; where the biceps normally grows thinner and spindle-shaped, we ascertained the presence of a rounded, abnormally prominent tumor, which was recognized by palpation as the entire belly of the biceps sunken into this position by reason of its gravity. Ecchymosis mostly gone; passive motion producing little pain, active flexion of the cubit very slow and powerless, painful but possible. The flabby mass of detached muscle hardened

FIG. 1.



and contracted on itself during flexion, but remained perfectly movable all the time.

To arrive at a reliable diagnosis of muscular rupture, it is necessary to ascertain: 1. The disability of the arm; 2. The presence of an abnormal depression at the site of the muscle; and 3. The existence of the loose rudiments. The subjective but less reliable symptoms which help to complete the picture may here be mentioned. 1. The lightning-like shock, accompanied by stinging pain in the shoulder and along the course of the muscle; and 2. The peculiar cracking noise or crepitus, which I suppose is very similar to that heard and felt in tenotomy.

As regards differential diagnosis, we have to bear in mind that muscle is painful and remains so immediately after having sustained an injury, whereas tendon, being normally less sensitive, becomes tender only hours after lesion.

Injuries affecting the tendon of the long head of the biceps can often be recognized by merely observing the functional disturbance consequent upon and characteristic of them. I have already drawn your attention to the fact that if the long head alone is hurt, flexion of the *pronated* forearm is possible, but flexion *in supination* utterly impossible. While assistant of Langenbeck, Prof. Hueter first pointed out this circumstance in a short article published in Langenbeck's *Archiv*, Bd. v. Each of you on his own arm can ascertain the fact that the biceps, although it remains perfectly inactive during flexion of the pronated forearm (the whole work being performed by the brachialis internus alone), will participate with great energy in the work, if you attempt flexion in supination. This little experiment proves that both muscles have to exert themselves in supination, in pronation only the brachialis internus;[1] and this again may lead to the conclusion that in supination the conditions for flexion are less favorable than in pronation. Hueter explains this in the following manner: In pronation the radius rests on the ulna (*see* Fig. 2), the longitudinal axes of the bones forming two sharp angles at their point of intersection; in supination the bones lie parallel to each other in an horizontal plane. The tendon of the biceps is stretched to its full length in supination; in pronation it is wound about the radius. Hueter goes thus far, leaving the mechanical causes of this functional peculiarity to be guessed at, but unexplained. The following reasoning, it seems to me, will cover all points as far as the subject admits of precision. Assuming that the bones of the forearm form a plane, we see that in supination this plane lies horizontally, in pronation its main position is vertical, that is, the radius is *above* and rests on the ulna. It is obvious that in pronation the centre of gravity will fall into the ulna near the point of intersection, consequently into the line of traction of the brachialis internus muscle, whose point of insertion is the coronoid process. On the other hand you find in supination that the centre of gravity must be situated somewhere between the two bones.

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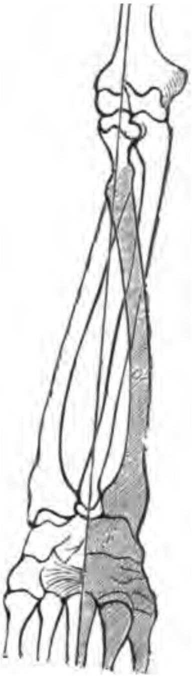
[1] This remark holds good only for cases where no considerable weights are attached to hand or forearm.

FIG. 2.



The centre of gravity thus shifting out of the line of traction, the weight of the task imposed upon the brachialis internus increases so considerably that ordinarily it is not capable of doing the work unaided.[1] By supination the point of gravity is placed *between* the two points of support (viz., the insertions of the two muscles), the biceps is stretched to its full length and then enters into action; thus the desired effect—flexion of the arm without overtaxing any one muscle—is reached with facility. I wish to remark, however, that, as the instance of our cooper illustrated, the brachialis internus may be so well developed in athletic subjects as to possess sufficient power to flex unaided the supinated forearm.

Hueter skillfully utilized this diagnostical aid. In cases of injury affecting exclusively the long head of the biceps, the muscle remains inactive during flexion in pronation, and no strain being upon it no pain ensues; the moment that the forearm is supinated during flexion, the biceps responds by contracting, and thus causes excruciating pain to the lacerated tendon or its sheath. Where the long head is *ruptured*, in most cases flexion in supination will be simply impossible.

The repair of simple ruptures is generally accomplished without difficulty. Complete ruptures require from 30 to 40 days to heal. The muscle remains rigid and tender for a long time after; its contractions are difficult and slow, but regain full energy if subjected to proper treatment. The recovery is usually retarded, and sometimes even results in impotency where the muscle has sustained severe bruises, and the union of the rudiments is slow and incomplete.

And now a few remarks about the treatment. 1. By complete flexion of the forearm the retracted rudiments must be brought as near each other as possible; if this expedient fails, Bose's plan[2] may be employed with satisfaction: Take two roller-bandages, apply one above, the other below the place of injury, so that their circuits should converge toward and meet at the rupture. This will not only help coaptation, but will also be a powerful aid in accelerating the resorption of the bloody effusion. By first wetting the roller and applying it evenly but not too tightly, constriction will be guarded against. A plaster-of-Paris splint over all this will afford sufficient stability. An hypodermic injection of morphia will relieve the patient of pain. If no untoward occurrence forbid, it will be of much advantage not to remove the splint before a firm cicatricial union has been established; that would be in about four or five weeks. Friction, massage, and the cold douche, applied judiciously once or twice a day, will greatly aid the nutrition of the atrophied muscle. While the cicatrix is tender, a constant current will be more appropriate; later an induction current can be used with safety.

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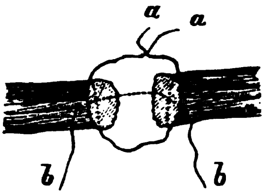
[1] The coronoid process, the point of insertion of this muscle, is notoriously situated very unfavorably on the one-armed lever (lever of the third kind) which this bone represents, being as close as possible to the fulcrum.

[2] Verhandlungen der deutschen Gesellschaft für Chirurgie. V. Congress, Berlin, 1876. I., p. 17.

In cases of tendineal rupture, the indications will resemble those enumerated. In perusing the report of the Fifth Congress of German Surgeons, I found related a number of tenorrhaphies successfully performed by aid of Lister's method. Langenbeck, Bose, Trendelenburg, Koenig, Madelung, Kuester, and others, in relating their several experiences, were unanimous in praising the safety of the catgut suture applied to dissevered tendons. They employed it in cases of fresh injury, as well as in those where a cicatrix had already formed without union of the tendon. Strictly observing Mr. Lister's rules, they exposed the tendon by the necessary incisions and tried coaptation. If this failed, Bose's converging bandage[1] was of eminent use. Afterward two slender pieces of carbolized catgut were stitched transversely through both ends of the tendon, and the sutures were firmly tied (*see* Fig. 3). The wound was cleansed by a solution of chloride of zinc (8 per cent.), and

FIG. 3.



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[1] Esmarch's elastic band in these cases.

closed with the necessary number of catgut sutures. Over all Lister's dressing was applied. In all cases enumerated by the mentioned gentlemen, union by first intention followed, and the functional results were uniformly excellent.

After considering these facts, the suggestion seems to be justified that, in certain rebellious cases of tendineal rupture of the long head of the biceps, a similar treatment may be admissible.

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[1] At the dissection, made many years after the injury took place, the upper or central piece of the tendon was found doubled up like a sling and encased in a cystiform tumor easily felt under the skin during life.

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ART. IV.—*Glaucoma Malignum, with an Illustrative Case.* By GEORGE REULING, M. D., Surgeon in Charge of the Maryland Eye and Ear Institute, Baltimore.

GLAUCOMA is a typical form of eye disease, which owes its origin to an increase in the intra-ocular fluids, and which, in the majority of cases, is accompanied by inflammation. It is not my intention to expatiate upon the causes of the increased tension, nor to explain the relationship existing between the inflammation and the intra-ocular pressure. Inasmuch, indeed, as there may be great tension and no inflammatory symptoms (*glaucoma simplex*), this connection is, as is known, the subject of several theories, each of which may be, in a measure, correct, since there is no doubt that very different causes may lead to increased tension and glaucoma.

The disease may be divided into two great groups, to particularize which division it will be necessary to make a few explanatory remarks. It can be proved by direct injection, as Leber has shown, that there exists no immediate connection between the anterior chamber and the vitreous humor; hence the idea of interchange of liquids by endosmosis and exosmosis has become an exploded theory. This being the case, Stilling was led to conjecture the existence of a defluent canal, the office of which must be to carry off the superabundant, and to refurnish the deficient, fluid circulating in the vitreous body. This canal, whose office, therefore, is to establish a normal equilibrium, he very naturally asserted to be the central tubular canal of the vitreous body. In order to prove the truth of his theory, he made a number of interesting experiments. He, for instance, applied a tight ligature around the optic nerve of a rabbit, carefully protecting the surrounding parts from injury, in order to avoid neuro-paralysis. Five to ten days after the application of the pressure, very marked increase of tension was produced. The cornea became entirely bereft of sensation, the eye became stony hard, and the vitreous body, especially its posterior portion, became fluid. The reason for these appearances was manifest. If the optic nerve is firmly compressed, the interchange of fluid from the Pialsheath of the optic nerve on the one hand, and the central tubular canal on the other, is interfered with. This canal, therefore (that is, the central tubular and the Pialsheath), may be called the posterior drainage or defluent canal; and if closed, by whatever means (as shown by Stilling's experiment), the intra-ocular pressure is increased, and excavation of the optic nerve results.

There is, however, another drainage canal, the anterior, or, in other words, the Fontanaic space. If this is closed, as when there is total pupillary occlusion, or when the iris is adherent to the posterior surface of the cornea, a form of glaucoma is produced, the origin of which may be explained by the fact that, as pressure in the anterior chamber increases, not as much fluid can be carried off by the posterior defluent canal in a given time as takes place normally, and that therefore glaucoma (excavation of the optic nerve) results.

There are, therefore, two main divisions of the disease:

1. When the posterior drainage or defluent canal is interfered with or closed by some pathological condition: this form may be designated, at the recommendation of Stilling, as *glaucoma posticum*.

2. Where the anterior defluent canal, the Fontanaic space, is closed (as in *glaucoma consecutivum*, after, for instance, iritis serosa, ulcera corneæ, and so on), whereby, as above stated, not sufficient fluid can pass from the vitreous into the Pialsheath in a given time, in order to maintain a healthy balance: this may be called *glaucoma anticum*.

It must be here stated, however, that mere closure of the Fontanaic space itself does not *always* produce glaucoma, although, in the great majority of cases, a firm adhesion of the periphery of the iris to the cornea (owing either, primarily, to the increased pressure or to an inflamed state of the surroundings of the canal of Schlemm, and consequent exudation from the iris and the vicinity of this canal) is to be met with in the glaucomatous process, and, as above shown, may be either the cause (as in *glaucoma anticum*) or the result (in consequence of the pressure in the posterior part of the eye) of the disease.

As there may be complete closure of the Fontanaic space, with no existing nor necessary consequent glaucoma, so there may be entire patency of this space in even the most manifest glaucoma. In the great majority of cases, however, when obliteration of this space exists, it is due to increased tension or inflammatory exudation, depending indeed upon, or at all events leading to, the disease under consideration (Knies).

With the various subdivisions, *Glaucoma inflammatorium acutum*, *G. inflammatorium chronicum*, *G. simplex*, *G. consecutivum*, I will not engage the time of the reader, but would direct his attention to that very peculiar and, happily, very rare form of the disease known as *glaucoma malignum*.

The disease—of which I will present one case in illustration—occurs chiefly in women in the beginning of or during the climacteric years (Schweigger), or in those suffering with uterine troubles (Manz). (Hoffman's "Bijdrage tot de Kennis van het glaucoma." Utrecht, 1861.)

The patients *generally* present themselves with all the symptoms of a typical *glaucoma simplex consummatum* in the one eye, while the other, also affected with *glaucoma simplex*, is still, comparatively speaking, only slightly impaired as regards vision (Samelsohn, H. Pagenstecher, Schweigger: Ophthalmological Congress at Heidelberg, 1877). However, the one eye may offer to view, instead of *glaucoma simplex consummatum*, a *glaucoma inflammatorium chronicum absolutum* (Arlt), whereas the less affected eye may reveal the picture of a *glaucoma simplex*, i. e., increased tension and excavation of the optic nerve, but scarcely a trace of inflammation.

After the iridectomy, however—although this be performed in the most skillful and correct manner—pain sets in, the eye reddens, the lens is squeezed into the pupillary area, the eye is even harder than prior to the operation, or, in other words, an acute inflammatory glaucoma develops, which, after the lapse of a few days, leads to total blindness (Schweigger, Ophthalmological Congress at Heidelberg, 1877).

The question naturally presents itself: How is this much-to-be-dreaded event—which cannot be prevented or remedied—produced? In spite of the iridectomy, however well timed and well performed, the posterior defluent canal (the Pial-sheath of the nerve, or the tubular central canal of the vitreous) may continue obstructed, or the anterior defluent canal (the Fontanaic space) may in part remain closed; or the sclerotic may be so rigid that, even in spite of the incision, the pressure on the nerve continues: whatever the cause, it is certain that the intra-ocular tension, instead of being diminished and reduced to the normal condition, is increased by an acute glaucoma manifesting itself very suddenly; this increased pressure, however, forces the lens forward (Schweigger, *op. cit.*, l. i.), and, it may be, as in two cases described by Pagenstecher, and as in the one immediately to be detailed, even between the gaping margins of the wound. The lens will thus act as an irritant, producing an inflammatory condition of the iris and the ciliary body, and also shutting up the new defluent canal created by the iridectomy. That a cataractous condition of the lens may be produced by this protrusion is evident, although this fact alone would not present matter for serious reflection if, upon removing the lens, vision might be restored, even in part. This is, unhappily, not the case; relief from pain may indeed be given by extracting this local irritant (Hirschberg), although such extraction should not be undertaken immediately, for fear of resulting intra-ocular hæmorrhage (Arlt).

At the last meeting of the Ophthalmological Congress at Heidelberg (1877), my friend, H. Pagenstecher, of Wiesbaden, described three cases of *glaucoma malignum*, in two of which the lens had been pushed forward and protruded from the lips of the wound. In two cases also *both* eyes were operated on in one sitting.

Schweigger described six cases, all occurring in women at the climacteric period. Hirschberg mentioned a case which happened in a diabetic patient, and Samelsohn narrated a perfectly similar case to those above treated of, i. e., where, after iridectomy had been performed for *glaucoma simplex*, *malig-*

nant glaucoma supervened, ending, of course, in total loss of sight.

The case I will now describe presented to view all the characteristics of the disease treated of in the above. It is very interesting, inasmuch as it serves to enrich ophthalmological literature with a rare instance of true *glaucoma malignum*, and a detailed account will therefore be given.

The *status præsens* of the case, when she presented herself at the Institute, July 6, 1875, was as follows:

Mrs. R., of slender build and in feeble health; about forty-five years of age.

Left eye: Visual power equal zero. The media, including the crystalline lens, cloudy; so much so that the fundus cannot be seen. Tension extreme (T. 3, of Bowman's classification: the ball cannot be dimpled, even by firm pressure). Sclerotic white and glistening—owing to atrophy of the subconjunctival tissue. Extremely shallow anterior chamber; iris atrophic; cornea flattened and bereft of sensation. She has had repeated exacerbations of frontal pain, which have increased in intensity of late, and are now—at the time of her admission into the Institute—very severe.

Right eye: Tension somewhat increased (T. 1, Bowman); pupil slightly dilated and slow to react. Field of vision contracted toward nasal side. Media clear; vision not greatly reduced (about one-third); there is, however, well-defined excavation of the optic disk, extending to the inner margin. No spontaneous, but easily producible, arterial pulsation. Presbyopia rapidly increasing. No ciliary neuralgia.

The diagnosis was *glaucoma inflammatorium chronicum consummatum* in the left, and *glaucoma simplex* in the right eye.

The prognosis as to vision in the left eye was, of course, *nil*. An iridectomy was, however, proposed for this eye, in order, simply, to alleviate the pain and to arrest the inflammatory exacerbations. The prognosis regarding the right eye was, of course, decidedly more favorable, the great probability being that the process would be checked, and sufficiently useful vision retained in this eye after the operation. A broad upward iridectomy was accordingly performed in both eyes.

The immediate result of the operation was most satisfactory. A clear and large pupil was obtained, unattended with any bleeding into the anterior chamber, and the tension in the right eye had diminished immediately subsequent to the iridectomy, so that the finger could easily impress it.

The patient was visited by me and my assistant several times during the day, as well as in the evening. Her condition was found to be very good. That night, however (it is worthy of remark that these cases of malignant glaucoma—that is, acute inflammatory ensuing upon chronic inflammatory or simple glaucoma—always show themselves during the first night after the operation. V. Schweigger, *op. cit.*, p. 22), she had had an attack of angina pectoris, to which she was subject, and, the nurse informed me, had sat up in bed in her attempt to get breath. She had suffered intense pain in and around the eyes during the night.

On carefully removing the bandage, I discovered that both eyes were extremely congested, the lips of the incisions gaping and the upper margin of each lens protruding, having been squeezed between the wounds.

Owing, perhaps, to the effort of sitting up in bed, or, simply and alone, to that unaccountable tendency to increased pressure and inflammatory appearances which, luckily, manifests itself in but comparatively few eyes, an acute glaucoma had taken the place of the simple glaucoma in the right, and a renewed inflammatory exacerbation had followed upon the consummated disease in the left eye; the crystalline lenses were pushed forward into the lips of the wounds by the increased pressure, joined to the exertion of the patient, and that unfortunate condition known as *glaucoma malignum* was produced.

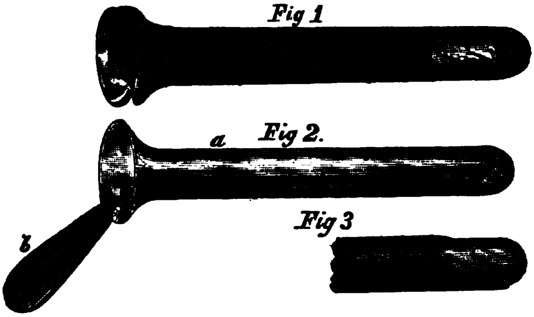
Oblique illumination revealed to me, when the bandage was first removed, a small opacity in the right lens, spreading from the point of pressure (the lips of the wound) toward its centre. The left lens, as has been said, had been murky before the operation, having participated in the general degeneration of the different tissues of this eye.

I did not deem it advisable to extract the lenses, dreading hæmorrhage, and preferring to replace them by means of the recumbent position and the pressure-bandage.

After the lapse of about fourteen days both wounds were firmly closed, and I proposed the operation of extraction of the right lens to the patient and her relatives, to be performed in a few weeks. This I was not permitted to do, the husband objecting, nor did I insist, as I was aware that no useful vision would have resulted after so manifest a case of malignant glaucoma.

V.—*An Endoscope, for Examination of the Urethra, Bladder, Rectum, etc.* By ALEXANDER J. C. SKENE, M. D.

THIS instrument is composed of three parts, viz.: A glass tube, shaped exactly like the chemist's test-tube, except that the mouth is a little more flaring (Fig. 2, *a*); a mirror, with handle attached (Fig. 2, *b*); and a hard-rubber tube (Fig. 1), similar to the glass one in shape, and fitting over it, having near the closed extremity a fenestra, through which applications can be made to diseased points. As the extent of surface to be treated is sometimes too great to be reached through this fenestra, I have had made a second rubber tube, open at both ends, the inner end being cut off at an oblique angle to the axis of the tube (Fig. 3). The handle of the mirror is made of a very thin piece of metal, concentric with the glass tube, and covering about one-third of its circumference when in position, and is a perfectly dead-black, to prevent any re-



flection of light from its surface. The mirror, which is of a high reflecting power, is attached at an angle of about 100°, and the other extremity of the handle is bent in the opposite direction to the mirror, giving a surface by which to hold the instrument while in use.

It will be seen that the mirror can be moved forward or backward, or turned in any direction; so that, when the tube is introduced into the urethra, rectum, or any other canal, all of the exposed surface can be brought into view, while the tube itself remains stationary.

The method of using the instrument is as follows: The tube, with the mirror in position, is introduced into the canal to be explored. Light is then thrown into the tube by the aid of a concave mirror; this shows the portion of mucous membrane opposite the small mirror, by changing the position of which, all parts are successively brought into view. Sunlight answers very well, when all conditions are favorable for its use; but on dark or cloudy days, or when the position of the office-window makes it impossible, I prefer gas-light, and use for this purpose a bracket movable in every direction, fitted with an Argand burner and the ordinary condensing attachment. This gives a very strong yet soft and steady light. The color of the mucous membrane lining these canals has already been described, but the introduction of the endoscope modifies this color to some extent. This is especially true of the urethra, where, if a large-sized tube is used, the parts are put upon the stretch, and the pressure of the glass upon the membrane, interrupting the capillary circulation to a slight degree, renders the color, as seen upon the mirror, a pale pinkish-white. This does not interfere with the examination, however, as it makes a contrast between the diseased and healthy portions, and brings the former into more marked prominence.

The use of the rubber tube suggests itself. Having, by means of the endoscope, determined the extent and position of the surfaces to be reached, it is withdrawn, and one or other of the rubber tubes is introduced, into which the endoscope and mirror are inserted, and the fenestra, or open end of the tube, is brought directly opposite the diseased point.

Withdrawing the glass tube, being careful not to disturb the rubber one, the desired application can easily be made.

Slight modifications in the shape and size of these tubes render them applicable to any of the mucous cavities.

Correspondence.

COMPARISON OF THE RESULTS OF THE CÆSAREAN SECTION AND LAPARO-ELYTROTOMY IN NEW YORK.

New York, *April* 19, 1878.

EDITOR NEW YORK MEDICAL JOURNAL:

Sir: ON the evening of March 21st, I read before the New York Academy of Medicine an essay entitled "Laparo-elytrotomy: a substitute for the Cæsarean Section." In the discussion which followed the reading of this paper, Dr. T. C. Finnell declared that he had come to the meeting in doubt as to whether the Cæsarean section or laparo-elytrotomy held out the better chance for life to mother and child, and that he went away with the same doubt existing in his mind.

This statement, from so judicious and candid a practitioner, took me by surprise, and at once stimulated me to a search into the statistics of the Cæsarean section, as relating to New York and its suburbs. The result of the inquiry has been this—since the settlement of Manhattan island by the Dutch, and the incorporation of "Nieu Amsterdam" in 1621, only one successful Cæsarean operation has occurred! By successful, be it understood, I mean resulting in the survival of both mother and child. How many operations have been performed, neither I, nor any one else, can say. No better proof of this assertion can be given than an allusion to the fact that, while in an elaborate article by Dr. Robert P. Harris, in the April issue of the *American Journal of the Medical Sciences*, only three operations are accredited to this locality, there were, upon the rostrum at the Academy on the occasion just alluded to, three men, within a few feet of each other, who had together performed it seven times. Three of these operations Dr. Finnell reported in the debate of the night; one Dr. Barker performed; and three were performed by myself. I regret that the large meeting was not called upon for a *viva-voce* report of all the cases of which its members knew. My impression is that the number of which I had cognizance would certainly have been doubled.

It may, I think, be regarded as certain that, in over 250 years, whatever be the number of Cæsarean operations performed here, only one has resulted successfully for mother and child. Let us now compare these results with those of laparo-elytrotomy reported at the meeting alluded to. Four operations were performed upon women whose children were living when they were undertaken; in the fifth case the child had been previously perforated, and was surely dead. Four children were delivered alive and uninjured. Four women were viable at the time of operation; the fifth was moribund. Three survived, and are to-day in good health. Or, to state the matter in other words: at the time of operation four women and four children were viable, and, of these, three women and four children survived. Out of the eight lives put to the arbitrament of the procedure, seven were saved; and it must be borne in mind that the woman who died was almost moribund at the time that surgical interference was practiced.

I have neither time nor inclination to plunge into the unfathomable lake of statistics of the Cæsarean section. I take the small field in which laparo-elytrotomy has been performed, and compare the results of the two operations there; and, having done so, I cannot but reiterate my surprise that Dr. Finnell should not have been induced to look more favorably upon a procedure which had in eight years, the eight years too of its extreme infancy, produced treble the successes achieved by the other in over two centuries and a half.

A great deal of hope for the brilliant results to be achieved in the future by the Cæsarean section has been excited by the application to it of all the precautions practiced in ovariotomy. I share this hope, most cordially and devoutly; but it must be remembered that, during the last quarter of a century the obstetric surgeon has been freely instructed, in reference to the matter, by the great results of Atlee, Wells, Keith, Koeberlé, Peaslee, Dunlap, and Kimball. A quarter of the 19th century is equal to the whole of the 18th, as far as medical progress is concerned; and results should long ago have been forthcoming.

I beg you and your readers to believe, however, that I am not pressing the adoption of this new operation upon the profession, but only its claims to being considered and tried. My wish is to prevent, if I can, its falling again, as it did in times past, into oblivion, when it is capable of producing such results as have already been demonstrated.

Respectfully yours, T. Gaillard Thomas.

Clinical Reports of the Demilt Dispensary.

HEART AND LUNG DEPARTMENT.

CASES OF CARDIAC DISEASE.

By Dr. A. A. Smith.

I select from my note-book the histories of some cases of cardiac disease which may be of interest.

Case I.—*The heart on the right side without transportation of the other viscera.*

I was asked by Dr. Billington, one of the district physicians of Demilt Dispensary, to see a case which presented the following history:

John B., aged twenty-four, milkman. Has never had rheumatism, nor measles, nor scarlet fever; when thirteen years old, a slight deformity of the spine was first noticed, which subsequently increased somewhat, but was never attended with much pain. Five years ago he began to have occasional attacks of palpitation of the heart, and slight dyspnœa, but these did not prevent him from continuing his work.

Nine years ago, while at school, he discovered by accident that his heart was beating on the right side instead of on the left, as in other boys. He suffered but little inconvenience until May, 1877, when he began to have swelling of the feet and legs, more dyspnœa and palpitation, nausea, vertigo, dimness of vision, headache, and great debility. I first saw him in September, 1877. He was quite cachectic. I found a curvature of the spine, not great, outward and to the right, between the sixth and tenth dorsal vertebræ, with corresponding prominence of the right side of the thorax posteriorly. There was scarcely any deformity to be seen anteriorly. The apex impulse of the heart could be seen and felt, and the heart sounds heard, occupying the same positions on the right side that they ordinarily do on the left. The heart's action was intermittent and irregular. There was a loud, aortic regurgitant murmur. There was no pulmonary disease discovered. There was no pleurisy with effusion on the left side, no retraction on the right side from old pleurisy or from cirrhosis of lung; no pericarditis, and no diaphragmatic hernia on the left side (which might have allowed the stomach to come up into the left side and pushed the heart to the right side). The liver was slightly enlarged, and was in its usual situation. The urine was heavily loaded with albumen. I concluded from this examination that it was a case of congenital transposition of the heart. This was the only time I saw the case until I saw the autopsy at the Presbyterian Hospital, November 15, 1877. He had died the day before in the hospital.

Autopsy.—Pericardium contained about a half pint of fluid. The heart was transposed, the apex being found 3¼ inches to the right of the median line, in the fifth intercostal space; walls very thick; weight 29 ounces; aortic valves insufficient. The right pleural cavity contained about a pint of fluid; left pleural cavity no fluid, but there were firm adhesions over the lower half of the lower lobe of the lung.

Kidneys—diffuse parenchymatous nephritis.

Liver—large, "nutmeg," left lobe more enlarged relatively than the right.

The spleen was adherent to the left lobe of the liver, and these two were matted together to the diaphragm.

There was also lateral curvature of the spine, the convexity of the curve looking to the right and slightly backward, involving the dorsal vertebræ, from the sixth to the tenth. The matting together, from adhesions of the left lobe of the liver, the spleen, and the diaphragm, prevented the heart, in its enlargement from disease, from going downward; the adhesions of the left pleural surfaces prevented it from going to the left; it must go somewhere, and the spinal curvature made sufficient opening, and it slipped through to the other side. It was evident that we must look further for a case of normally transposed heart without transposition of the other viscera, to add to the already very few reported cases. The spinal curvature, as a cause of the displacement of the heart, occurred to me at the time of my examination, but I thought the curvature was too slight to account for it, and it seems to me it would not have been displaced to the other side had not the strong adhesions of the liver, spleen, diaphragm, and left pleural surfaces made an immovable barrier to the heart, in its progress of enlargement, from going in its usual direction downward and to the left. We often see cases of much greater spinal curvature with no displacement of the heart, at least not displacement as far as to the right side. I ought to mention that some of those present at the autopsy were inclined still to regard it as a case of congenital transposition.

CASE II. *Two lesions on the right side of the heart, tricuspid obstruction and regurgitation. Three on the left side, mitral obstruction and regurgitation, and aortic regurgitation.* —Mary G., aged sixteen years, of Irish parentage, temperate, no specific history. She was healthy up to six years of age, when she began to have spasmodic muscular contractions over almost the whole body, partially under control of the will. They were much increased by excitement or fatigue. They were not attended by loss of consciousness, but necessitated her sitting down until they had passed over. She would sometimes have 12 or 15 of such manifestations a day, lasting from a half to two or three minutes. After these had lasted a few weeks, she had an attack of rheumatism which lasted about four months; while she was ill with rheumatism, her choreic movements continued, but were less marked. She convalesced completely from her rheumatism, and her choreic movements also disappeared.

At twelve years of age the choreic movements again manifested themselves and with them the rheumatism. She now, for the first time, complained of rapid beating of the heart and shortness of breath, both of these symptoms being much worse at the time in the day when the choreic movements were worst. She recovered from this attack in a few weeks.

At fourteen years of age she had a severe attack of the spasmodic movements after exertion, which lasted almost incessantly a whole day. They were accompanied by great prostration and dyspnœa, with palpitation. At the end of 24 hours she had a violent coughing spell, and quite free hæmoptysis which relieved very much all the bad symptoms. From this time she has constantly complained more or less of dyspnœa, palpitation, cough, and inability to lie down in bed to sleep. When asked what brought her to the dispensary she answered: "To have something done for my palpitation and shortness of breath."

She was quite anæmic, of slight frame, not more developed than a child of twelve years of age, somewhat "pigeon breasted." She has never menstruated.

The apex beat of the heart could be seen and felt in the seventh intercostal space one inch without the linea mammalis. There was heaving of the whole precordia. There could be seen projecting down into the epigastrium a large pulsating tumor, about three and a half inches in length by two and a half in width, more to the left than to the right of the median line. A distinct purring thrill could be felt over the whole precordia, more distinctly over the portion of the heart that projects into the epigastrium below the bony coverings. When pressure is made over this portion, she complains of great dyspnœa and a feeling of faintness, and she soon becomes cyanosed. She has for a long time noticed that pressure there gave her great distress. Percussion on a line with the fifth rib revealed cardiac dullness to an inch and a half beyond the linea mammalis on the left side, and to one inch and a half beyond the right border of the sternum. Between the third and fifth rib on the right side, there is dullness to two inches beyond the sternal border. There were a mitral obstructive and regurgitant murmur and an aortic regurgitant, with their usual seats of maximum of intensity and directions of transmission.

There was a presystolic murmur heard with its maximum of intensity just at the base of the ensiform appendix, diminishing in intensity as the spot was left until the apex is approached, when the left-side presystolic murmur could be heard.

A systolic murmur was heard with its maximum of intensity an inch and a half to the right of the median line along the fifth costal cartilage. There was jugular pulsation when the patient held her breath, and distinct hepatic pulsation constantly. It seems almost hopeless to give dispensary patients directions to take care of themselves, for, when my assistant went to see this patient at her own home, he found her at the wash-tub in her bare feet, in a room not even comfortably warm. Was the right-side disease congenital, or was it the result of rheumatic endocarditis of the right side, or was it secondary to the results of disease of the left side? The mother says she was not what is called a "a blue baby." There is no history of difficulty previous to the sixth year. I am inclined to think it the direct result of endocarditis of the right side.

It is interesting to note with what comparative comfort some patients can live with such an enormous amount of cardiac disease. In this patient the lesions probably compensate each other in a remarkable manner.

CASE III. *Excessive Use of Tobacco in Cardiac Disease producing very Little Disturbance.*—Wm. C., aged 25, segar maker, came to Dispensary, January, 1878. Six years ago he had ac. art. rheumatism; was confined to the house four weeks. Convalesced nicely. One year ago for the first time, after running a mile to a depot to catch a train, he suffered from severe dyspnœa and palpitation. In a few hours this entirely disappeared, and he suffered no further trouble until three weeks ago, when he changed his boarding-place, going up four flights of stairs to his room. This exertion caused him some dyspnœa, palpitation and vertigo, and made him cough. His heart is enlarged by hypertrophy, with slight dilatation. The apex is in the sixth intercostal space. There is a distinct purring thrill. The lesions are aortic stenosis and insufficiency and mitral stenosis. He has been in the habit of smoking from twelve to fifteen cigars a day for the past fifteen years. If he smokes as few as eight, he feels the loss of the stimulant, and becomes much depressed. To test the effects a few months ago, he one day smoked thirty-five cigars with the result to make him "feel a little tired by ten o'clock at night," and he felt no ill effects the next day. At my suggestion he tried smoking but four cigars a day; but at his next visit a week later, he said he was unable to work, to eat or sleep well, dyspnœa and palpitation came on without much exertion, and on his resuming his full allowance these unpleasant symptoms were much relieved.

Case IV.—Wm. J., aged 18, came to Dispensary, June, 1877. His mother says that about nine years ago she first noticed an unusual prominence on the left side over the region of the heart. At that time he made no complaint of feeling ill. She asserts positively that he was perfectly healthy up to that time, and first began to complain about six years ago, after a general swelling all over the body, called by the attending physician "dropsy." He recovered from this dropsy, but has suffered since more or less from dyspnœa, palpitation, and inability to lie down at night to sleep. During the past year these symptoms have all become aggravated. He has a much enlarged heart, the apex beating in the 7th intercostal space on the linea mammalis. There is a very marked bulging over the precordial region and extending down to the 8th left rib. There is no evidence of rickets, and none of pericarditis. The bulging seems to be due entirely to the hypertrophy of the heart. There are two lesions, aortic obstruction and mitral insufficiency. There is no albuminuria. The functions of the kidney and liver, and indeed of most of the abdominal viscera, seem to be carried on pretty well.

He was quite anæmic, appetite poor, digestion only fair, and it seemed that he was having more difficulty because of functional disturbance of the heart in addition to organic disease. He was accordingly put on tonics, the dispensary solution of iron and sulphate of cinchona, twelve drops of the former—tinct. fe. chlor.—to one grain and a half of the latter in solution after each meal. Under this treatment his condition improved rapidly, and in four weeks he said he felt so well he did not think it necessary to come again.

A question of interest came up in connection with this case, as to whether cardiac disease progresses more rapidly in growing children than in the adult. Sir Wm. Jenner thinks it does progress more rapidly in growing children, the heart in its physiological development being more liable to rapidly increasing pathological changes after they are once begun. He brings forward clinical facts to substantiate this point. Here the cardiac disease had existed certainly nine years and probably a long time before, because the mother says the bulging was quite prominent when she first noticed it. Certain it is that children are free from a realization of the seriousness of the disease, and thus escape the disturbing influences of the nervous system which adults have to contend against, and which play no insignificant part in the progress of any serious disease, especially cardiac disease.

CASE V. *Three Murmurs, Aortic Obstructive, Aortic Regurgitant, and Mitral Obstructive; Disappearance of the Mitral Obstructive.*—The interest in this case attaches to the absence of purring thrill with mitral obstructive murmur, and the disappearance of the murmur.

James W., aged 33, came to the Dispensary in June, 1877. While serving in the army thirteen years ago, he had an attack of ac. artic. rheumatism. Directly on recovery from this he began to suffer from dyspnœa and precordial pain, and has suffered more or less from it since. He was, up to within a year, intemperate; but, finding this aggravated his symptoms, he has given it up.

He is quite anæmic, digestion poor, becomes at times very much depressed, knows he has heart disease. There is some enlargement, the apex being in the 6th intercostal space, just within the linea mammalis. There is no purring thrill. The murmurs are aortic obstructive and regurgitant and mitral obstructive. When the patient is placed in the recumbent posture, the mitral obstructive becomes so faint as to become almost imperceptible. He was put on the Dispensary solution of rhubarb and soda, to improve his digestion.

℞. Pulv. rhei.,
Sodæ bicarb., āā ʒ ij.
Aq. menth. virid., ℥ iv.

of which two teaspoonfuls were given before morning and evening meal. He was also given cod-liver oil ℥ ss, with ten drops tinct. fe. chlor. (which mixture he had taken before with benefit). This to be taken after each meal. His digestion improved in a week. The rhubarb and soda mixture was then discontinued, and the oil and iron continued. In four weeks his improvement was marked. He said he felt like a different man. A careful examination now failed to reveal a mitral obstructive murmur, except after quite violent exercise. I believe this was one of those mitral obstructive murmurs produced by the floating out of the mitral curtains by the blood in a partially-filled ventricle, as long ago pointed out. The back flow of blood through the aortic orifice being pretty free, the left ventricle is unable to empty itself thoroughly, the curtains are floated into the current of blood coming from the left auricle, and a murmur is produced. When the blood is anæmic, the ventricle has much greater difficulty in emptying itself, and the anæmia itself helps to produce a murmur. When the anæmia in this case was relieved, the left ventricle could be more thoroughly emptied, and the murmur disappeared. A heart can do its work much more thoroughly if it has blood of the proper consistency to act upon. The purring thrill of stenosis was absent, because there was no stenosis and its accompanying conditions to produce the vibrations. It is well-known that, where purring thrill exists, it indicates in the great majority of cases mitral stenosis.

Treatment of Cardiac Disease.—It may not be amiss to give a few points as to the management of cardiac disease as it presents itself at the Dispensary. We do not often see cases there very early in the development of the disease, and there comes a time in its progress when the patient is unable to come to the Dispensary. The cases seen are only those between the early manifestations and the late, very severe symptoms. When we have ascertained that there is cardiac disease, we try to discover to what extent the symptoms depend on functional disturbance. Many of the patients suffer from dyspepsia, particularly gastric. The dyspepsia may antedate all manifestations of cardiac disease. If there is but slight enlargement, and the hypertrophy is compensating dilatation, oftentimes the palpitation and dyspnœa will be entirely relieved by improving the digestion by the use of the mixture of rhubarb and soda, before referred to. It is given in dessertspoonful doses before each meal. In a very large number of such cases there is anæmia, and, after continuing the rhubarb and soda a few days, the iron and cinchona sulphate mixture is given, a teaspoonful after meals, and continued until the anæmia is relieved. With the relief of the anæmia often all disturbance ceases. Instead of the iron and cinchona mixture, sometimes the cod-liver oil and iron mixture is given, if well tolerated by the stomach. If the stomach will not tolerate either mixture, as is sometimes the case, we give pepsin pulv. gr. xv. before each meal, continuing it for a week or two, until the iron mixture can be used.

If there have been long-continued dyspeptic symptoms, and there is anæmia associated with them, not much cardiac disease, and gastric digestion seems delayed, the following is prescribed:

℞.	Tinct. fe. chlor.,	
	Ac. nitro-mur. dil.,	āā ʒ iij.
	Tinct. nuc. vom.,	ʒ ij.
	Syr. aurant. cort. q. s. ad	℥ ij.

M. Sig. ʒ j in water after meals.

This combination is usually well borne by the stomach.

When there is gastric disturbance, with or without much gastric catarrh, and the heart is feeble in its action, dilatation predominating over hypertrophy, there are usually evidences of failure of heart's action shown elsewhere, venous engorgements, dyspnœa, and perhaps dropsies. In such cases we use digitalis, usually the tincture, 8 or 10 drops three times a day. If there is, among other symptoms, diminution in the quantity of urine, we prefer the infusion made from fresh English leaves, in ℥ss doses, three times a day, or even oftener, if necessary, to strengthen the heart's action, and increase the quantity of urine. If there is anæmia, we combine the digitalis with iron. The pulmonary complications are apt to give patients much trouble. The dry, hacking cough which occurs in many cases previous to the diminution in heart power, I believe, is often due to reflex influence through the pneumogastric, just as is often the vomiting, and have frequently found the bromides give relief—the bromide of sodium, 5 grains, three or four times a day. In the large class of cases suffering from bronchial catarrh, particularly if the lesion is at the mitral orifice, the following gives relief:

℞. Ammon. carb.,	ʒ ij.
Tinct. digitalis,	ʒ ij.
Tinct. opii camph.,	ʒ vj.
Aq. puræ, q. s. ad	℥ vj.

M. Sig. ʒ ij in water t. i. d.

In another class of cases, where there is decided heart failure and general venous congestion, with dyspnœa on the slightest exertion, and probably, at the base of the lungs, slight pulmonary œdema, if there be anæmia, the digitalis, with the iron and cinchona sulphate mixture, ten drops of the former with one teaspoonful of the latter is given t. i. d.

Pain is not a prominent symptom. The favorite tonic, where there is pain, is arsenic, in the form of Fowler's solution—five drops after each meal, with the other remedies mentioned, if there are indications for their use. It is extraordinary what faith all dispensary patients have in plasters, and one can hardly go amiss in prescribing them. Certain it is that oftentimes pain and palpitation, and even dyspnœa, are much relieved by a "poor man's" or belladonna plaster over the cardiac region.

In some cases where there is engorgement of the veins of the abdominal viscera, a saline cathartic is given with relief. Occasionally 3 or 4 compound cathartic pills are given; and it is a noticeable fact that oftentimes remedies which have failed to give any relief before the cathartic will, after it, have the desired effect.

Hemorrhages become sometimes serious complications. From whatever source, whether epistaxis, hemoptysis, hematemesis, or menorrhagia, if there be marked dilatation and venous engorgements, we give the following:

℞. Tinct. fe. chlor.,
Tinct. digitalis, āā ℥ ss.
Fl. ext. ergot., ℥ j.
Syr. aurant. cort. q. s. ad ℥ iij.
M. Sig. ʒ j t. i. d. in water.

In private practice, I sometimes give a pill-substitute for this as follows. One t. i. d.:

℞. Fe. sulphat.,
Pulv. digitalis, āā gr. j.
Aq. ext. ergot., gr. ij.
M. Ft. one pill.

Where there is a history of syphilis in any case of heart disease, and particularly if there are evidences of the disease elsewhere in the body, we give antisyphilitic treatment in combination with the other remedies.

In the great majority of cases we tell patients they have heart-disease, thinking that by knowing it they will take the better care of themselves.

We caution them against violent exercise, against all causes of functional disturbance, and urge them to get the best possible hygienic surroundings. This is possible in a few cases; but the most of them are obliged to work, and many of them have families dependent on them. Nursing women are urged to wean their babies.

Almost all cases of cardiac disease that come to the Dispensary for even so short time as a few weeks are much benefitted, because the great majority of them are very much run down, and are suffering from such complications as can be relieved by appropriate treatment.

One general direction, quoted frequently by an eminent teacher in this city, is given to all patients with cardiac disease: "Let your moderation be known unto all men."

Proceedings of Societies.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, March 13, 1878.

Dr. John C. Peters, President.

Cystic Degeneration of the Pancreas.—Dr. E. G. Janeway presented, on behalf of a candidate, a specimen of cystic degeneration of the pancreas, with the following history: A man, aged forty-two, entered Bellevue Hospital August 29, 1877. He had an attack of abdominal pain on August 15th, which was accompanied by vomiting. He had subsequently a similar attack, but at neither time had he jaundice. Another attack followed, which resembled closely the first two attacks, with the exception that the pain lasted longer, and after it the patient became jaundiced. On examination, a tumor was found in the region of the liver, which measured 4 inches in either diameter. This tumor was aspirated on November 13th, and 4 ounces of a reddish fluid withdrawn. It decreased in size to the extent of two-thirds, but on the second day after the aspiration pain was detected in it, and it became considerably larger, measuring 4 inches by 6½. The condition of the patient continued without much change for the subsequent month, when the tumor ruptured. Ten days subsequently he died.

Autopsy.—The tumor proved to be a cyst which was adherent to the duodenum and transverse colon. A second cyst was also detected, of smaller size and thinner walls. The pancreatic duct could be traced into the cyst. The case was cystic degeneration of the pancreas, causing pressure on the common bile-duct.

Dr. Satterthwaite presented a case, about two years ago, in which hæmorrhage took place into the pancreas, causing hæmatoma of that organ; in other respects it resembled the case presented by Dr. Janeway.

Formation of New Joint, following the Operation of Exsection

of the Hip-Joint.—Dr. Lewis A. Sayre presented a rare and exceedingly valuable specimen of new joint, which occurred in the hip of a child upon whom the operation of exsection had been performed. The section of the specimen showed the formation of a new acetabulum with cartilage. The cartilage was a new formation, as, in the operation, the original acetabulum was carious, and during the operation had been removed. The history of the case was as follows: A child, two years and nine months old, was first seen July 23, 1875, and was at that time suffering from the third stage of hip-disease. Exsection was performed September 29, 1875. The head and neck of the femur were entirely gone, and there was diseased bone in the acetabulum. The opening closed on October 30, 1875, and for two years the patient was not under Dr. Sayre's care, but subsequently became an inmate of Bellevue Hospital, suffering from amyloid disease of the kidneys and liver. Death occurred March 4, 1878. Each of the lower extremities measured 13½ inches in length. A section of the right hip showed no trace of dead bone, but, instead, a new joint, which closely resembled the hip-joint of the other side, but had a diminished amount of motion.

Spindle-Celled Sarcoma of the Superior Maxilla.—Dr. Erskine Mason presented a specimen of sarcoma of the superior maxilla, which he had removed from a patient in hospital. The disease began as a tumor of the left superior maxillary bone, two years ago. There was only gradual advance till two months ago, when it suddenly began to increase in size. It filled the whole of the antrum, projected through the roof of the mouth, and bulged the eye out. There was severe pain in the superior maxillary and orbital regions. Dr. Delafield removed a portion of the growth, and found that it presented, under the microscope, the characteristics of spindle-celled sarcoma. The usual operation for removal of the superior maxilla was performed, and the soft parts and periosteum dissected from the orbital plate. In a former case of removal of the upper maxilla, performed in a similar manner, Dr. Mason found that the orbital plate was reproduced, and the vision, which was bad at the time of the operation, was subsequently very much improved.

Interstitial Gastritis.—Dr. A. L. Loomis presented the stomach, gall-bladder, portion of the liver, and peritonæum, of a patient who furnished the following history: A German lady, forty-three years of age, came under observation during the fall of 1875. She had been living in Germany, and, while there, was treated by different medical men, who considered the case to be one of dyspepsia. She steadily grew worse, but, when seen by Dr. Loomis, was well-nourished. After careful examination, the liver was found to be decreased in size, and smooth. There was a mass of hardened tissue in the median line, immediately over the stomach. The patient had formerly been in good health. She had three children, the youngest ten years of age. During the last confinement, there would seem to have been an attack of pelvic peritonitis, from which, however, she recovered completely. There was but little change in the patient up to last April. It was then noticed that she had lost flesh, and was paler than usual. There was also abdominal swelling. An examination showed this to be in part due to fluid, and it was also noticed that the superficial veins were becoming enlarged. At the patient's request, a prognosis was given, which was of an unfavorable character. Another practitioner then took charge of the case, and made a diagnosis of stricture of the rectum. He suggested treatment by dilatation. This was done, but no improvement followed. Six weeks later, Dr. Loomis again saw her, and found an increased amount of fluid in the abdomen, and marked emaciation. After consultation with another physician, the patient was tapped, and 12 quarts of a clear fluid withdrawn. She then went to Saratoga, and placed herself under the care of Dr. Lente, who again tapped her. She suffered from diarrhœa and vomiting, and shortly afterward returned to New York, in a very exhausted condition. She was then seen by Dr. Drake, who found the abdomen much distended. He tapped her, and found a tumor near the umbilicus, which he believed to be cancer of the stomach. The patient became very much exhausted, and suffered from pain so severe that she required six grains of morphia daily for relief. She died November 10, 1877.

Autopsy.—The abdomen contained three quarts of fluid. The stomach was about one-third of its normal size. The walls were thickened, and the pylorus much diminished in size. There was no cancer. The peritonæum was thickened, and presented the characteristics of chronic peritonitis. The intestines were bound together. The uterus was retroverted. There was no stricture of the rectum. The liver was diminished in size. The heart and lungs were normal. The glands were not involved. Acute pain was not a feature of the case, till three months before death. Dr. Loomis said that, when he first saw the case, he made a diagnosis of interstitial gastritis, which was confirmed by the specimens presented. About two years ago he had brought to the notice of the Society a somewhat similar case, in which death took place from hæmoptysis.

Dr. JANEWAY said he had seen cases of granular peritonitis in which no pain was complained of.

Pyo-nephrosis.—Dr. BRIDGE presented the kidneys, ureters, bladder, and part of the prostatic urethra, of a patient who had suffered from pyo-nephrosis. The history of the case was not complete, and the main interest was in the specimens presented. The patient was eighteen years of age, and several years before coming under observation was kicked in the perinæum. He entered St. Luke's Hospital September 26, 1874. On admission the urine was clear, but at times it contained pus and blood. Stone was suspected, but a careful examination showed that none was present. He passed blood, at intervals, from the bladder, but it was impossible to decide on the source of it. He left the hospital and went to Philadelphia, where he died on November 9th.

At the autopsy, one quart of pus was found in the left kidney. The colon was attached to and communicated with it by an opening sufficiently large to admit a lead-pencil. The ureters of either side were thickened. The mucous membrane of the bladder was thickened. The prostatic urethra contained two or three points of ulceration.

Tricuspid Regurgitation.—Dr. BEVERLY ROBINSON presented a case which he had obtained from Dr. Maxwell, curator of Charity Hospital. The patient was a woman, who had entered hospital suffering from dyspnœa and œdema. An examination of the chest showed the presence of mitral and aortic regurgitant murmurs; also a murmur heard to the right of the heart. She died of exhaustion.

Autopsy.—The heart weighed 20 ounces. There was found to be insufficiency of the tricuspid orifice. The lungs presented the characteristics of brown induration. The liver was in a state of red atrophy.

Some discussion took place between Drs. LOOMIS and JANEWAY on the cause of purring thrill, and its value in the diagnosis of murmurs of the heart.

Dr. JANEWAY said that, in his experience, he had found it to be present either in mitral stenosis or aortic regurgitation.

Dr. LOOMIS did not coincide with this opinion. He had not observed it in aortic regurgitation.

Stated Meeting, March 27, 1878.

Dr. JOHN C. PETERS, President.

Perforation of the Appendix Vermiformis; Death.—Dr. F. N. OTIS presented, on behalf of a candidate, a specimen of perforation of the appendix vermiformis, with the following history:

The candidate was called on September 30, 1877, to see a patient aged 40, and found him suffering from severe pain. He stated that during that day he was attacked with severe abdominal pain and vomiting. Brandy and paregoric had been administered, but without benefit. At the time of the visit the countenance was pale and anxious, but there was nothing abnormal in pulse, temperature, or respiration. On examining the abdomen a deep-seated pain was found in the right iliac fossa, about two inches from the crest of the ilium. During the day the bowels had moved freely. An injection of morphia subcutaneously was administered, and warm fomentations ordered to be applied to the abdomen.

October 1st.—Only slight relief was obtained from the morphia. Castor oil and 40 drops of tincture of opium were given. In the evening there was no improvement; the oil had produced a free motion. The patient was on his back, with his thighs flexed on the abdomen. Pulse, 95; temperature, 102°. Considerable tympanites. Ordered morphia every two hours.

October 2d.—Patient suffering severely. Pulse, 100; temperature, 101°. Diarrhœa set in. Tympanites lessened. A careful examination showed no sign of tumor. In the evening became delirious. The delirium was of violent form. Pulse, 120; temperature, 104°. Had a chill. Quinia given in ten-grain doses.

October 3d.—Was seen by Dr. F. N. Otis in consultation. Pulse, 120; temperature, 101½°; respiration, 20. Abdomen tense and tympanitic. Delirium continued, but of a milder form. The symptoms seemed to point to perityphlitis, but resembled also typhoid, of which several cases had recently occurred in the vicinity. Dr. Otis favored the view that the patient was suffering from perityphlitis.

October 4th.—Tympanites entirely subsided. Mild delirium still present. Skin clammy; pupils dilated. In the afternoon Dr. H. B. Sands saw the patient. A careful examination of the abdomen and rectum failed to show any trace of disease in the ileo-cæcal region. Dr. Sands was of opinion that the case was probably meningitis, and that the abdominal symptoms were reflex in character. A slight convulsion occurred while the examination of Dr. Sands was being made. During the night, convulsions of a more severe character appeared.

October 5th.—Pulse, 90; temperature, 101°. Skin cool and moist. Much quieter. Takes a small amount of nourishment. Dr. Draper was called in consultation, and inclined to the opinion that the patient was suffering from typhoid fever, but subsequently agreed with Dr. Otis that the disease was perityphlitis, resulting in abscess. It was conceded that the brain symptoms were due to septicæmia.

October 6th.—Pulse, 125; temperature, 104°. Condition slightly improved. Subsequently exhaustion supervened, and resulted in death on October 7th.

Autopsy.—There were no changes in the brain sufficient to give rise to the cerebral symptoms occurring in the course of the disease. On opening the abdomen the peritonæum was healthy. The lower part of the ileum slightly congested; the cæcum and ascending colon markedly congested. The cæcum and appendix vermiformis firmly bound down by adhesions which, when removed, showed the presence of an abscess in the cellular tissue behind the cæcum. The abscess burrowed into the sheath of the psoas muscle, and contained about six ounces of pus. The appendix vermiformis presented two perforations on its posterior surface, and within it was a hard fecal mass. There was no nucleus to the fecal impaction.

An interesting point in connection with the case was the disappearance of all signs of perityphlitis and the occurrence of cerebral symptoms when the patient was examined by Dr. Sands.

Epithelioma of Lower Lip.—Dr. SATTERTHWAITE presented, on behalf of a candidate, a specimen of epithelioma of the lower lip, with history. A man, aged forty, in ordinary health, noticed during July, 1874, a small, hard pimple near the angle of the right half of the lower lip. There was but little pain felt in it unless it was irritated by the presence of a cigar. The patient was in the habit of smoking twenty cigars a day, but did not smoke a pipe. For three years the pimple remained stationary. He had it treated, however, by the application of nitrate of silver and sulphate of copper, but without result. In June, 1877, the pimple began to grow slowly, and after four months measured half an inch in diameter. It was then decided to be epithelioma, and removed by a V-shaped incision. There was no recurrence till January, 1878, when a painful nodule was noticed in the middle of the lower lip. This became ulcerated, and manifested a tendency to extend. A second operation similar to the first was performed on January 30th, and after four days union had taken place. A microscopical examination showed it to be a recently-formed epithelioma. There was no connection between the first and second nodules, as the distance between the first cicatrization and the second nodule was half an inch.

Aneurism of the Heart.—Dr. HEINNEMAN presented an interesting specimen of aneurism of the heart. The patient was a woman aged thirty-three years, who had been an inmate of

Roosevelt Hospital during 1874 and 1876. The history of the case was not so definite as might be wished. It pointed to some thoracic trouble, indicated by pains in the precordial region as far back as 1869. When she was examined in hospital in 1874, there was a strong left radial pulse, with a systolic murmur at the base and apex. In 1876 the heart was found to be enlarged. Death took place from exhaustion. At the autopsy the pericardium was found to be adherent. The right auricle and ventricle were dilated, also the left ventricle. There was tricuspid and mitral insufficiency, with stenosis of the aortic and pulmonary openings. The heart when examined presented the most interesting lesion in the left ventricle. At first sight it was difficult to tell where the apex was to be found. This was due to the fact that an aneurism of the left ventricle changed the gross appearances of the organ. The wall of the ventricle forming the aneurism was found to have undergone fibroid degeneration.

Dr. PETERS said that nine or ten such cases had been presented to the society.

Calculus of Bladder; Lithotrity.—Dr. KEYES presented the fragment of a stone which he had removed within an hour by lithotrity, aided by the instrument for washing out the fragments devised by Dr. Bigelow, of Boston. The patient was sixty-three years of age. The first crushing lasted 20 minutes, and, on washing out the bladder, 94 grains were obtained. The second crushing yielded 29 grains. Dr. Bigelow's instrument, which Dr. Keyes exhibited, consists of a large rubber bulb, with dependent glass tube. The bulb is filled with water, and, on compressing it and allowing it to expand, the water is forced into the bladder and returned to the bulb. The fragments which are drawn back into the bulb subside into the glass tube, and thus in a few minutes all fragments can be readily removed from the bladder.

Pleurisy; Aspiration; Death.—Dr. ROBINSON presented specimens obtained from a patient who had suffered from pleurisy. Aspiration was performed three times. The fluid again returned, and the patient died.

Perineal Lithotrity.—Dr. STIMSON presented the kidneys and part of the urethra removed from a man upon whom the operation of perineal lithotrity had been performed. The patient had suffered for three months from frequent micturition, and latterly for six weeks from incontinence. An examination of the bladder by the rectum showed a large mass near the prostate body. The stone was soft. The walls of the bladder were an inch thick. The bladder was adherent to the symphysis pubis. Death occurred in 48 hours, from uræmia.

Removal of Foreign Body from Trachea.—Dr. BRIDGE presented a button which he had removed from the trachea of a woman. The point of interest of the case was that the button had been in the trachea for a year without giving rise to any trouble. After that period of time it acted as an irritant, causing severe cough. An examination of the case with the laryngoscope showed the button situated in the trachea. It was thought at first to attempt its removal without an anæsthetic, but subsequently it was determined to administer ether. This was done, and the foreign body readily removed.

Lumbo-Colotomy.—Dr. ERSKINE-MASON presented specimens removed from a case of lumbo-colotomy upon whom the operation had been performed 17 months previously. The patient was a woman twenty-five years of age. She entered Bellevue Hospital during September, 1876, stating that she had been delivered of a child by instruments 2 months before. On examination there was found to be a recto-vaginal fistula, with stricture of the rectum, two inches above the anus. There was also a mass of indurated tissue near the stricture, which was thought possibly to be cancerous. The stricture had been treated both by divulsion and incision, but without satisfactory results. The patient suffered severe pain. The operation of lumbo-colotomy was performed on September 20, 1876. Subsequently the pain was relieved, and on examining the stricture it was noticed that it was giving way. She complained occasionally of pain in the hepatic region, but no diagnosis was made out. Death took place 17 months after the operation, from Bright's disease with pleurisy. At the autopsy it was found that there was ulceration of the intestine from the anus to the opening in the colon. An adventitious mass, not cancerous, was discovered near the site of stricture. A calculus was found in the cystic duct.

Stated Meeting, April 10, 1878.

Dr. John C. Peters, President.

Caries of Cervical and Dorsal Vertebræ without Angular Deformity; Death from Intercurrent Tubercular Meningitis.—Dr. Gibney presented on behalf of a candidate a specimen of caries with the following history: A boy, about three years old, was admitted to the Hospital for Ruptured and Crippled, May 22, 1877, having suffered from spinal symptoms for four months previous. There was no history of injury. On admission there was noticed a tendency to opisthotonos, and great care in his motions, while either walking or stooping. There was no angular prominence, nor tenderness along the course of the spine. Appropriate apparatus was applied, and the case progressed favorably till December 4th, when symptoms of tubercular meningitis manifested themselves. An ophthalmoscopic examination was made on the sixth day of the disease, but nothing abnormal was detected. Death occurred on the tenth day. The autopsy was conducted by Dr. E. G. Janeway. An effusion was detected at the base of the brain, of the character usually found in tubercular meningitis. The ventricles were also distended with fluid.

An examination of the spine showed two pear-shaped abscesses, riding the vertebræ anteriorly at the level of the first dorsal. These abscesses communicated with the diseased vertebra. The cartilage of incrustation of the second dorsal vertebra alone remained of the body, while the intervertebral disks were healthy, as were also the articular surfaces. There was also a central osteitis with loss of substance in the body of the fifth cervical, but not so far advanced as in the second dorsal. In the sixth and seventh cervical and first dorsal, the disease presented the characteristics of rarefying osteitis. The cord was normal, both macroscopically and microscopically, with the exception of a slight amount of peri-meningitis. The specimens were of special value in illustrating strumous disease of the vertebræ. The absence of deformity was due to the fact that the diseased vertebræ were not contiguous. The symptoms of opisthotonos were accounted for by pressure on the nerves at the foramina of exit. The patient had been in hospital seven months before the meningeal symptoms manifested themselves.

Emphysema and Entero-colitis.—Dr. Putnam Jacobi presented on behalf of a candidate specimens obtained from a case of entero-colitis, with emphysema and fatty degeneration of the heart. The patient was a woman aged fifty. The prominent symptoms were cough and occasional attacks of dyspnœa, together with profuse diarrhœa. Death took place from failure of the heart. The autopsy showed ulceration of the colon and ileum, with fatty degeneration of the heart. The liver extended one inch and one-fourth below the lower border of the ribs.

Treatment of Goitre by Injections.—Dr. Beverly Robinson presented a patient upon whom he had made a series of injections of the tincture of iron after the manner suggested by Dr. McKenzie of London. He presented also the photographs showing the appearance previously and subsequent to the operations. The case was one of fibro-cystic goitre, and had been treated by injections of the tincture of iodine, but without any special benefit, as the cyst readily refilled. The injection of the tincture of iron was commenced September 27th, and continued during a period of five months. In that time from 25 to 30 injections were made. The result of these injections was to convert the cyst into an abscess. Subsequently the tincture of ergot was used, but without special benefit. Two silver canulas were used to procure free drainage. These were worn continuously for a time. Previous to the use of the tincture of iron, the neck measured 18 inches in circumference, and presented a large tumor to the right of the median line, and extending up to the ramus of the jaw. As a result of treatment, the cyst decreased in size, and the neck measured only 14 inches. The photographs showed a marked reduction in the size of the tumor. The cyst bled during the time the injections of tincture of iron were employed, and suppurated very freely. Subsequently there appeared a vascular growth upon the surface of the cyst and near the opening.

Dr. Robinson wished to know if any member of the Society had any suggestions to make in regard to the future treatment of the case. He had read of cases in which galvanism had been used with benefit, but had no experience with that agent.

Dr. Putnam-Jacobi said that galvanism was indicated in goitre of neuro-paralytic origin. She had seen a case in which marked improvement had taken place. The tumor was nearly as large as in Dr. Robinson's case.

Dr. Seguin had used galvanization in goitre; in some cases benefit resulted, but in none of them did cure take place. Dr. Seguin had used an aqueous solution of the solid extract of ergot, but without any benefit whatever.

Pseudo-Membranous Bronchitis.—Dr. Robinson presented bronchial casts which had been sent to him by Dr. Brown of Syracuse, N. Y. They were from a case who had furnished similar casts, presented about a year ago. Since that time the patient, a child, had been expectorating them regularly. Dr. W. H. Carpenter had seen the patient referred to by Dr. Robinson. The casts were expectorated easily and copiously.

Dr. Peters said he had seen with Dr. Loomis a case in which casts of the bronchi were thrown off every few weeks.

Dr. Seguin asked if arsenic had been used in the treatment of the disease; cases were reported in which that agent had proved effectual in checking the formation of the false membrane.

Disease of the Joint; Amputation.—Dr. Briddon presented specimens of disease of the knee-joint, with the following history: The patient was a farmer aged thirty, who came under observation March 20, 1878. He was seen by a physician during April, 1873, and at that time suffered from strumous synovitis. He then passed under the care of a bone-setter. The disease passed on to suppuration, resulting in several fistulous openings in the vicinity of the joint. At the time the patient was seen by Dr. Briddon, the leg was flexed laterally. The articular surfaces were carious, and communicated with the surface by several sinuses. The patient did not complain of pain. It was decided to perform an amputation of the thigh at the lower third. The inner condyle of the femur contained an irregular cavity. The whole of the joint was carious.

Brainless Child.—Dr. Seguin presented the body of a brainless child at full term. It had the usual appearance of an acephalous fœtus. The face was perfect. The top of the head was covered by a red membrane, and beneath it there was a crust of bone. On removing this crust some serum was found, but no cerebral matter. The cerebellum was also wanting, and the first evidence of nervous substance was in the medulla oblongata. The optic nerve terminated in the sphenoid bone. The peripheral nervous system well developed. Dr. Seguin said the case was interesting in showing the independence of development of the brain, and of the remaining nervous system.

Epithelial Cancer of Tongue.—Dr. Stimson presented a specimen of epithelioma of the tongue which he had removed from a patient. The history of the case was as follows: A man, aged forty, entered Bellevue Hospital, suffering from pain in cheek and ear. He subsequently entered Charity Hospital. At that time there was an ulcer of the tongue. He was treated for it under the belief that it was specific, but without benefit. On admission to the Presbyterian Hospital an ulcer of the tongue was noticed. There was no hardness of the base, and it was suspected that the case was syphilitic. He was given the iodide of potassium in large doses, with considerable improvement for a time only. He was then subjected to mercurial fumigation, and again there seemed to be improvement, but not at all decided. In spite of the slight arrest which resulted from treatment, the case steadily progressed. Amputation was performed. An examination of the specimen showed it to be epithelial cancer.

THE THERAPEUTICAL SOCIETY OF NEW YORK.

[*Concluded from April Number.*]

Preliminary report upon the Use of a Mixture of Chloral and Bromides in Epilepsy.

During the summer of 1877 it occurred to me that, by making use of a solution of bromide of potassium and chloral, we might obtain all the good—i. e., antispasmodic action—of the bromide without so much cutaneous eruption, general physical deterioration, and mental depression, as we too often see during the ordinary treatment of chronic cases of epilepsy.

My reasons for hoping this were: 1. That chloral is a powerful spinal depressant as well as hypnotic, as evidenced by its property of neutralizing the toxic effects of strychnia. 2. That its long-continued use produces evil results only when the dose is very large; and these results differ very much from those of bromism.

I at once instituted a trial of this new treatment in my clinic for diseases of the nervous system at the College of Physicians and Surgeons, and in my private practice. The gentlemen who have charge of the various classes at my clinic have ably assisted me in this, as in other researches, and their individual reports are appended. My friend, Dr. J. C. Shaw, of Brooklyn, also made use of the new combination, and has favored the committee with a summary of his experience.

The formula employed in the trials made by these gentlemen—Drs. McBride, Emerson, Shaw—and by myself was a simple modification of the common bromide mixture which we employ. This common solution[1] consists of potassium bromide ℥j, ammonium bromide ℥ss, water ℥vij. Roughly speaking, each teaspoonful of this solution represents ten grains of potassium bromide and five grains of ammonium bromide; and the total number of teaspoonful-doses given in one day differs in various cases from four to eight. Chloral hydrate was substituted for ammonium bromide, so that each teaspoonful of the new solution contains ten grains of potassium and five grains of chloral hydrate. In the following cases (except Dr. Hamilton's) this solution was given in doses of four to six teaspoonfuls a day; the largest amount—three or four teaspoonfuls—being administered at bedtime.

At the first meeting of the Committee on Neurotics, held November 24th, I had the honor of submitting this subject for study.

At the second meeting of the committee, held December 29, 1877, we learned that our fellow Dr. Allan McLane Hamilton had been using a mixture of bromides and chloral for some months, even previous to my own first trials, and he favored the committee with a report of his experience, which is also appended.

Dr. A. McLane Hamilton reports 13 cases—2 private and 11 hospital cases. In Case I., after moderately-successful use of bromides, one-half of the bromides was omitted, and replaced by an equal quantity of chloral hydrate. Bromism, which had previously been very marked, ceased, while the attacks of epilepsy were as well prevented. Great general improvement occurred. In the other cases, a solution containing bromide and chloral, in proportions varying from one-half to one-third of chloral, was administered, and with substantially similar results. Dr. Hamilton concludes: "After the new treatment, I found that, if anything, the attacks were diminished in frequency; that the general health became improved; that the patients became brighter, and that the digestive derangements became less marked. I have been unable to see any very decided improvement in the eruption which is so frequently produced by large doses of the bromide. In two cases the attacks were not followed by headache and sleep. In one case (since the presentation of this report) I have found that the menses have been delayed, and that an explosion of attacks occurred which were utterly beyond the control of the bromide and chloral."

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[1] *See* a paper "On the Use and Abuse of Bromides," by E. C. Seguin, M. D. *New York Medical Record*, May 5, 1877.

Dr. McBride reports four cases—one private case and three cases observed at the clinic for Diseases of the Nervous System, College of Physicians and Surgeons. He used the formula specially mentioned at the beginning of this report. Dr. McBride concludes: "It is my impression that this combination of chloral and bromides *can be continued for a longer time with a quantity of bromide equally great than the bromide alone, without inducing bromism*, and at the same time exerting a greater controlling influence upon the epileptic seizures. Again, it would appear that this combination has a much greater effect in controlling *petit-mal* than combinations of the bromides. No symptoms have been manifest in any of the above (four) cases of chloral-poisoning—as rheumatic pains, erythema, suffusion of the conjunctivæ, intolerance of stimulants, tobacco, or coffee; no changes in the pulse or action of the heart. The testimony of the patients is unanimous in regard to their improvement in strength and spirits. The depressing subjective sensations of languor and debility which wellnigh all patients have who use bromides alone in large doses are absent, or at least have but little prominence."

Dr. N. B. Emerson reports two cases, not long under the new treatment. They seem to have been benefited—i. e., to have had fewer attacks, and to have felt better generally.

Dr. J. C. Shaw wrote the committee as follows: "With regard to the use of chloral hydrate and potassium bromide in epilepsy, my observation so far has been on six or eight cases. In all of them the attacks were arrested immediately. It seems to me that we are able to arrest the attacks with much smaller doses of the bromide when chloral is combined with it. The patients are brighter and more cheerful, but this probably is due to their not being under the depressing effect of the larger doses of bromide. The formula I have used is the one recommended by Dr. Seguin, of which mixture I have so far given three teaspoonfuls a day, the last one at night. In a few old cases, one teaspoonful twice a day and two teaspoonfuls at bedtime have constituted the dose. In not one of these cases have there been attacks while the medicine was taken."

I myself have used the mixture (one to two) of chloral and bromide in three private patients with the result of checking the attacks, at least as well as with simple bromide, and with the satisfactory effects mentioned in the conclusion of this report. My three patients have taken the mixture for over two months.

REMARKS.—At least 28 cases have been treated by me with a mixture of bromides and chloral—15 of them by the standard solution above referred to; the other 13 by Dr. Hamilton's several formulæ.

An analysis of these 28 observations warrants, I think, the following statements:

1. That epileptic attacks are warded off quite as well by the new solution as by bromides alone.

Our patients have not been absolutely free from attacks while taking the medicine, but it must be remembered that they were all old-established cases of epilepsy; and, the most that can be hoped in the immense majority of such cases is, to reduce the frequency and severity of the attacks.

2. In my own cases (three in number) the state of the throat has been carefully observed, and its reflex power has been abolished quite as well as by the ordinary bromic solution.

3. In all the cases there has been remarkable immunity from the bad effects of the bromides, more especially those which manifest themselves in the psychic sphere. The patients have felt bright and hopeful, and have been almost free from distressing subjective sensations; some of them remarking upon the contrast between their present condition and that while under the influence of bromides alone.

The physical symptoms of bromism have been but feebly developed. Little or no acne has been noted.

In my own cases, the attitude of the patient (expressive of muscular and nervous tonus) has been normal, form erect and elastic.

In my own Case III., the change in the appearance and condition of the patient shortly after beginning the new solution was remarkable. Her extensive and disfiguring acne nearly disappeared; her complexion became clearer and more colored, her speech and ideas more fluent; a troublesome pharyngeal congestion almost ceased; her appetite increased, and digestion improved.

4. We have noticed no really bad effect resulting from the new treatment.

Your committee are therefore disposed to make a more extensive trial of the use of a mixture of bromides and chloral in epilepsy.[1]

They think that thus far the previsions of those who advanced the new method have been partially, if not fully, realized.

They hope at some future time to be able to go further, and to recommend the adoption of the treatment to the profession generally.

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[1] Contributions to this, or to any other topic under study by the Society, from non-members, will be gladly received by the Secretary, Dr. Andrew H. Smith, No. 110 East Thirty-eighth Street, New York, and duly credited to their authors in the Society's records or publications.

Dr. **Piffard** presented a specimen of an improved Dover's powder, having the following formula:

Take of opium assaying 10 per cent. of morphia...	1 part.
Ipecac..	1 part.
Sugar of milk..................................	8 parts.

Misce et trite bene secundum artem.

This gives a preparation of uniform strength, and less disagreeable to the taste than the ordinary Dover's powder.

Dr. Piffard also exhibited a specimen of Calcutta linseed, received from Dr. Sherwell, of Brooklyn, and which is proposed as a substitute for cod-liver oil, it being simply chewed and swallowed. The taste is much less disagreeable than that of ordinary flaxseed.

A specimen of pilocarpium muriaticum triturated with 99 times its weight of sugar-of-milk was also presented by Dr. Piffard, who recommended it as a convenient preparation for dispensing, and one not liable to be deteriorated, like solutions, by microscopic growths.

The following members were elected in executive session: Drs. Mary Putnam-Jacobi, F. P. Kinnicutt, George Bayles, and N. B. Emerson.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, March 19, 1878.

Dr. A. J. C. **Skene**, President, in the Chair.

Dr. **Jacobi** presented for examination a girl eight years old, with pseudo-hypertrophy of the right lower extremity, with the exception of the foot. There was also some enlargement of the right gluteal region. The mother had noticed the disease four years ago. For three months past it had been growing more rapidly. The child complained of fatigue in the evening, and exhaustion, especially in the right leg. The bowels and appetite were normal, and the sensibility of the skin was normal also.

Dr. Jacobi remarked that up to the year 1875 only eighty cases of this disease had been reported. Since then the journals had reported twenty or twenty-five more, making the whole number about one hundred. About eighty per cent. of all the cases occurred in male children. The lower extremities were generally affected. In one case the whole body except the pectoral muscles was affected. The disease began, as a rule, in the cellular tissue surrounding the muscular fibres. The termination was favorable as far as life was concerned. Very few cases died.

In regard to treatment, as there was originally an interstitial inflammation of the connective tissue, and also fatty degeneration of the muscular fibrillæ, there was an indication for whatever would either act antiphlogistically on the muscle, or stop the fatty deposit. He believed that at an early period the iodides, or mild mercurial treatment, would probably do good. Galvanism, in frequent and very short sessions, would probably do good. Ergot might also be tried. In any case, friction and massage would be required. In a large majority of the cases a family predisposition was found to exist. Three cases occurred in several families, and at about the same age. The disease was of central origin, and ought to be traced to the anterior portion of the spinal cord.

Dr. SKENE said he had seen one case, in a child born of syphilitic parents.

Dr. McLANE described a case of extraordinary pigmentation of the skin during pregnancy. The lady was now pregnant for the third time, and at about the eighth month, and the disfiguration was so great that she was obliged to stay in the house. There was a general deposit of pigment all over the body, in patches from an inch to six inches square, the largest being on the neck, back, and thighs. In these situations the skin was very much the color of that of a negress. The patient was a blonde, with fair hair and blue eyes.

Dr. JACOBI regarded the pigmentation in this case as a neurosis brought on by pregnancy.

Dr. McLANE supposed the pigmentation was the result of anæmia. The patient had been very anæmic.

Dr. NOEGGERATH knew of only one similar case. He believed the discoloration was due to alteration in the nutrition, as in bronzed skin, and he had no doubt the chief cause was anæmia, due to pregnancy.

Dr. Jacobi said that bronzed skin was now considered a neurosis.

Dr. McLane related another case, which showed how rapidly albuminuria would disappear when due to the pressure of a gravid uterus upon the renal veins. The patient had reached seven months and three weeks. Two weeks ago he had found large quantities of albumen in the urine, and there was considerable œdema of the feet, ankles, and legs, but no headache, no nausea, no pain anywhere. Free purgation, followed by dry cupping over the loins and large doses of digitalis, failed to increase the quantity of urine or diminish the proportion of albumen. Thirty-six hours later he proceeded to induce labor, by introducing bougies, followed by Barnes's dilators, and delivered a child weighing four pounds and a half, which had since done well. On the sixth day after he introduced the first bougie, the urine was absolutely free from albumen.

Dr. Mann asked if there had been a microscopic examination of the urine.

Dr. McLane said there had been, and a few casts were found.

Dr. Gillette thought it a very serious question whether labor should be induced whenever albumen was found. He had once examined the urine of one hundred pregnant women, and found albumen in thirty cases, not one of which had eclampsia. Relief followed the use of diuretics. He related the case of a primipara who had albuminuria and several convulsions, but who went safely to full term and did well. He did not think, as a practice, it was safe to induce labor upon the symptoms related by Dr. McLane.

Stated Meeting, April 2, 1878.

Dr. A. J. C. Skene, President, in the Chair.

Dr. Jacobi presented a girl, nine years of age, the subject of a rare form of localized atrophy of a portion of the scalp and face. Six years ago the child had a fall. Two months later she had frequent convulsions, with vomiting. She was then well for two years, except having headache, which was chiefly on the upper portion of the forehead. She then had severe convulsions every day, lasting two or three minutes. About three months ago she had two convulsions in a single forenoon. The child was of average intelligence, but rather morose and peevish, and had never been to school. Four or five weeks before the first attack, which was considered brain-fever, there was a red mark over the right eye. After the attack, it turned brown, and has remained permanent. There was now atrophy of a portion of the skin of the head, with loss of hair; atrophy of the lid of the right eye, and some atrophy of the right side of the face and nose. There was also a mitral regurgitant murmur. It was probable that the fall had resulted in hæmorrhage near the root of the right trigeminus nerve.

Galvanic treatment had been tried once a day for several weeks; but more confidence was placed in arsenic, in the form of Fowler's solution, of which from 4 to 8 drops had been given subcutaneously once a day for 5 or 6 weeks. The case was not the only one he had seen, but it was the most localized one.

Dr. THOMAS mentioned the case of a lady who, some years ago, was thrown out of a sleigh, striking her head against a stone wall. She was ill for some time afterward, and, from the time of the accident, one half of the face began to undergo atrophy, and the atrophy extended to the scalp. The accident occurred five or six years ago, and was still progressing. The color of the skin on the affected side was quite different, being of a dark copper-color.

Dr. DAWSON asked Dr. Jacobi if the results obtained thus far in his case warranted the hope of a perfect cure.

Dr. JACOBI thought they did.

Dr. GARRIGUES related a case of delivery by forceps, in which the child, a boy, was born in a state of profound asphyxia. Only a few feeble beats of the heart could be heard. He used all known means of resuscitation, except galvanism, for an hour and a half before there were any signs of life. The battery was not used because it could not be obtained. The insufflation of air by a catheter answered better than anything else that was tried. Seven hours after birth the child died. The lesson taught by the case was, that if only the heart beat the life of a child may be saved. It was an interesting question, whether the child, in the case described, could be legally said to have been alive. The laws of countries differed on this subject. According to the present French law, the child must be born viable, that is, with complete and perfect respiration. The Scotch law required that to be considered alive the child must cry. According to English law, the slightest vital act, after entire delivery, was sufficient proof that the child came into the world alive. In this country only one case of the kind had come before the courts. It was decided that the question of life was to be proved by the party seeking benefit from it. The decisions of the English courts in similar cases would probably be accepted here. "Born" was understood to mean entirely out of the body of the mother. Every effort should be used to make the child cry, because crying was a popular proof of life.

Dr. **Thomas** thought the use of the Faradic current as a means of resuscitation would have been worth all the other methods employed. In regard to cutting the cord after delivery, if the placenta was in part or wholly detached, the child was likely to lose more than it gained by leaving the cord uncut. In resuscitation, he had found Marshall Hall's method answer better than any other, though he had tried all.

Dr. **Jacobi** said that what was known as Sylvester's method was over 100 years old. In regard to cutting the cord, he certainly should not hesitate, because, as long as it remains uncut, the child could not be treated as it should be. In livid asphyxia there was generally a sufficient amount of blood in the body, but it was not properly distributed. He had seen good results for the last 8 or 10 years from the treatment in resuscitation in bad cases. The applications should be short, and be repeated often. A child was not recognized by the laws of any country as viable if born at less than 180 days; yet they had been known to cry under that age. In a case like his, he thought it well to cut the cord; but in normal cases he thought it good practice not to cut the cord before pulsation ceased.

Dr. Jacobi was of the opinion that in Dr. Garrigues's case the child ought not to have been considered viable, as it died, and had to die, in consequence of injuries incident to parturition, no matter whether it cried or not.

Dr. Mackenzie asked how long the Faradic current should be continued.

Dr. Jacobi said only for a moment or two. There should be a sudden shock.

Dr. Thomas said he was accustomed to apply one electrode over the clavicle and the other over the diaphragm, and then to lift and reapply the one over the diaphragm 18 times a minute.

Dr. Chamberlain said it was his practice in cases of livid asphyxia to cut the cord, believing the child could spare the loss of blood for the advantage of the movement imparted to the heart.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, March 25, 1878.

Dr. John C. Peters, President.

Mechanical and Non-Mechanical Treatment of Bow-legs in Children.—Dr. Ernst F. Horst read a valuable and interesting paper on the treatment of bow-legs in children, at the Hospital for Ruptured and Crippled, giving the results with and without apparatus. He cited the opinion of authors who advised as well as those who condemned the use of instruments.

Sixty cases had been carefully observed, and of these fourteen received no mechanical aid, while forty-six had appropriate instruments applied. The fourteen cases were under observation from four to nine months, and were treated by manipulation of the limbs and constitutional treatment. In one case there was improvement, in four no improvement, and in nine the curve had increased.

In regard to the forty-six cases to which instruments were applied, not one of them was found to have had an increase of the curvature, though in some there was no improvement. In cases in which there was no improvement it was noticed that when they abandoned the use of the braces the curvature increased. In sixteen of the cases the improvement was marked. It was seen that the greatest benefit was obtained in those in which the curvature was greatest. The most satisfactory results were found in children between two and three years of age. Dr. Horst said that the length of time in which he had observed the cases was not sufficiently extended to determine definitely whether apparatus would completely relieve the deformities in all cases; but there could be no doubt of their marked benefit. In two of the cases in which no apparatus was used for a time, and in which a change for the worse was taking place, he had applied braces, and after two months' use a change for the better was observable. The cases that were considered cured had worn braces from nine months to two years. There was no injury, as might be suspected, from atrophy due to the pressure of the instruments. In all of the cases massage and friction of the limbs were employed twice daily.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 4, 1878.

Dr. S. S. Purple, President.

Tubal Pregnancy—Suggestion as to Removal through the Uterus.—Dr. Laurence Johnson read the history of a case of tubal pregnancy. He exhibited also the uterus and appendages, showing the rupture of the cyst at a point near the junction of the Fallopian tube to the broad ligament. The history of the case was as follows: A lady, aged 29, married seven years, and the mother of two children, ceased menstruating February 11, 1878.

On March 23d she complained of pain in the pelvic region, accompanied with great prostration. When she was seen by

Dr. Johnson she looked very much exhausted. The pulse was 140, and feeble. There was no bloody discharge from the vagina. The case was diagnosticated as one of tubal pregnancy, with rupture of the cyst.

March 24th.—Considerably improved. In the evening she was seen by Dr. Warren.

March 25th.—Slight tympanites; but in other respects there was no change. During the afternoon a fainting attack came on, closely resembling that experienced on the day of seizure. The exhaustion was so great that the patient was thought to be moribund.

March 26th.—Since the previous evening the patient rallied somewhat, but then sank, and died on March 27th.

Autopsy.—When the abdomen was opened, clotted blood was found to fill the cavity of the pelvis and extend above. A collapsed cyst of the right Fallopian tube was discovered. This cyst was situated near the junction of the uterus with the Fallopian tube, and was about the size of a hickory nut. The uterus measured 3½ inches, and was lined with decidua. There was no peritonitis.

Dr. Johnson said at no time was there severe pain. He wished to ask the opinion of the Academy in regard to performing gastrotomy and ligating the bleeding vessels in case a diagnosis of a similar case was made. The cause of death was exhaustion from hæmorrhage. It would seemthat the first attack of syncope was due to loss of blood, as was also the second, and the experience recorded might be valuable in another case as offering a suggestion in regard to treatment.

Dr. Thos. Addis Emmet said that the case of tubal pregnancy reported in the March number of the New York Medical Journal, by Dr. McBurney, was of special interest as affording a suggestion as to the proper procedure in similar cases. In that case, although the uterus was empty, and there could be no doubt as to the fact of a tubal pregnancy, still the fœtus was delivered through the uterus. Dr. Emmet said at that time he found in Dr. Parry's book on tubal pregnancy a case recorded where the observer felt the head of the child through the horn of the uterus. This fact, together with the progress of Dr. McBurney's case, which he saw in consultation, led him to believe that it might be possible to dilate the uterus, then dilate the horn, and in that way remove the fœtus in a case of tubal pregnancy. He had found by experience that a small amount of fluid in the uterus would dilate the Fallopian tube.

He presented a dilator, which he had found very serviceable, and had for many years used it in dilating the uterus. It consisted of a rubber bag, with pocket in which a sound could be introduced, so as to direct the course of the dilator. This could be curved after having dilated the uterus, and then turned into the horn to complete the dilatation there. Dr. Emmet said he simply made the suggestion of this mode of procedure, and its value could only be decided by experience. In all the cases of rupture of the cyst which he had seen, the point of rupture corresponded with the case reported by Dr. Johnson. He thought that, if it was certain that hæmorrhage was taking place, the operation of gastrotomy, in order to tie the bleeding vessels, was justifiable.

Bibliographical and Literary Notes.

ART. I.—*The One Hundred and Eighth Annual Report of the State of the New York Hospital and Bloomingdale Asylum for the year* 1877.

THIS is the first report since the opening of the large hospital in Fifteenth street. We learn that since the 17th of March, 1877, 679 patients have been treated in the wards, 419 being surgical, and 260 medical cases. In the out-patient department there were 731 medical and 141 surgical patients, making a total of 872, which is divided among 6 classes, viz., injuries and surgical diseases, 141; diseases of heart and lungs, 191; of head and abdomen, 207; skin and venereal, 115; children, 112, and women, 105. Sixty surgical operations were performed, and a tabular statement showing the indications and the results is given. The ambulance was called into service 480 times. Thirty-three patients were transferred to other hospitals. About 83 per cent. of the whole number of ward-patients were treated gratuitously.

At the "House of Relief," 160 Chambers Street, 1,155 ambulance calls were attended to during the year, 341 patients were treated in the wards, 5,162 in the out-patient department, and 358 were sent to other hospitals; 37 operations were performed in the hospital, and 108 in the out-patient service. All services are rendered gratuitously.

The statistical tables of both hospitals cover 23 pages. The cases are arranged according to the classification of the Royal College of Surgeons, and are a valuable and interesting contribution. It is to be hoped that ere long these tables will be amplified by the addition of clinical and pathological details. In this form they would prove very profitable to the profession at large, enabling medical men to share, so to speak, the experience of the staff of the hospital. We find no mention of the work done in the pathological museum. The Bloomingdale Asylum has cared for 255 inmates.

BOOKS AND PAMPHLETS RECEIVED.—Transactions of the Obstetrical Society of London. Vol. XIX. For the year 1877. With a list of Officers, Fellows, etc. London: Longmans, Green & Co., 1878.

Injuries of the Eye and their Medico-Legal Aspect. By Ferdinand von Arlt, M. D., Professor of Ophthalmology in the University of Vienna, Austria. Translated, with the permission of the Author, by Chas. S. Turnbull, M. D., Surgeon to the Eye and Ear Department, Howard Hospital; Chief of the Ear Clinic, Jefferson Medical College Hospital, etc. Philadelphia: Claxton, Remsen & Haffelfinger, 1878. Price, $1.25.

Heart-Clots. A Report of Three Cases (two long existing), and the Etiology, Diagnosis, Prognosis, and Treatment of Cardiac Thrombosis, based on an Analysis of Sixty-eight Cases and Physiological Experiments. By Martin L. James, M. D., Lecturer on Practice of Medicine, Medical College of Virginia, Richmond. (Reprint from "Transactions Medical Society of Virginia," 1877.)

Hand-book of Ophthalmology. By Prof. C. Schweigger, of the University of Berlin. Translated from the third German Edition. By Porter Farley, M. D., Rochester, N. Y. With Diagrams and other illustrations. Philadelphia: J. B. Lippincott, 1878. Price, $4.50.

Is Modern Education exerting an Evil Influence upon the Eyesight our Children? By A. W. Calhoun, M. D., Professor of the Diseases of t Eye and Ear in the Atlanta Medical College. (Reprint from the *Atla Medical and Surgical Journal.*)

Clinical Cases, Medical and Surgical. By the late John O. Stone, A.M.

M. D., formerly Surgeon to Bellevue Hospital, etc. New York: G. P. Putnam's Sons, 1878. Price, $2.50.

Pathological Report, Montreal General Hospital, for the year ending May 1st, 1877. By William Osler, M. D., McGill University. Vol. I. Montreal: Dawson Brothers, 1878. Pp. 98.

Irido-Choroiditis in the Puerperal State. By Thomas R. Pooley, M.D., New York. (Extracted from the "Transactions of the New York State Medical Society.")

The Faradic Treatment of Uterine Fibroids. By J. T. Everett, A. M., M. D., Sterling, Ill. (Reprinted from "The American Journal of Obstetrics." Vol. XI., No. 1.)

Suspension as a Means of Treating Spinal Distortions. By Benjamin Lee, A. M., M. D., Philadelphia. (Extracted from the "Transactions of the American Medical Association.")

Proceedings of the Louisiana State Medical Association; the Constitution and By-Laws, provisionally adopted; Code of Ethics of the American Medical Association, and Ordinances relating thereto.

Note on Hydrobromic Acid. By Edward R. Squibb, M. D., of Brooklyn. (Republished from the "Transactions of the Medical Society of the State of New York.")

"What Am I?" A Valedictory Address to the Graduates delivered at the Close of the Forty-first Session of the Medical Department of the University of Louisville, February 28, 1878. By J. M. Bodine, M. D.

Diabetic Coma: Acetonæmia. By Balthazar Foster, M. D., F. R. C. P. (Reprint from the *British Medical Journal*, January 19, 1878.)

Fourth Biennial Report of the State Board of Health of California for the years 1876 and 1877.

Medicinal Plants indigenous in Michigan. By A. B. Lyons, M. D. Read before the Detroit Academy of Medicine.

Diseases of the Hip-Joint. By James G. Beaney, F. R. C. S., Senior Surgeon to the Melbourne Hospital. Pp. 20.

The History and Progress of Surgery. An Address to the Students of the Melbourne Hospital. By James G. Beaney, F. R. C. S.

The Etiology of Intemperance. By C. W. Earle, M. D., Physician to the Washington Home, Chicago. Pp. 9.

Scarlatina in Chicago, particularly the Epidemic of 1876–'77. By C. W. Earle, M. D. Read before the Illinois State Medical Society. Pp. 22.

Sixty-fourth Annual Report of the Trustees of the Massachusetts General Hospital, 1877.

Report of the Board of Health of the State of New Jersey, 1877. Vol. I.

Forty-fifth Annual Report of the Boston Lying-in-Hospital.

Reports on the Progress of Medicine.

CONTRIBUTED BY DRS. EDWARD FRANKEL, W. T. BULL AND GEORGE R. CUTTER.

SURGERY.

A Case of Spina Bifida cured by the Elastic Ligature.—Dr. Colognese reports the case of an infant girl in whom, eight days after birth, a tumor of the size of a large orange was discovered over the fourth dorsal vertebra. It was pediculated at the base, and was soft and fluctuating. On the ninth day after birth the pedicle was surrounded with a drainage-tube, the ends being tied. On the following day the tumor had paled and the temperature had fallen; the tube was tightened about one centimetre. On the third day the tumor became bluish, and exhaled a fetid odor, the gangrenous process being complete on the eighth day; and on the ninth day the tumor fell off, leaving a small, round, healthy-looking wound, with a very small excavation in its centre, closed, and giving no exit to liquid. —*Gaz. Méd. de Paris*, 37, 1877. E. F.

Treatment of Exostosis by Subcutaneous Fracture.—M. Maunder exhibited two patients to the Clinical Society in whom the above method had proved successful. The first was a girl of fifteen. On her left thigh, just above the external condyle, was situated a pediculated bony tumor, which pressed upon the tendon of the biceps muscle and the external popliteal nerve, and gave rise to local pain and inability to fully extend the leg. The tumor was grasped with a pair of gas-fitter's pliers, the skin being protected by chamois leather, and its pedicle broken. Tenderness, swelling, and ecchymosis followed, but gradually disappeared. Reunion occurred, but in such a position as to cause no discomfort. In the second case the exostosis was attached to the inner edge of the tibia, just below the internal tuberosity. The patient was a girl of fourteen, who, two years before, had sprained her knee. The pedicle was fractured, as in the first case, the pain and inability to walk were removed, and the tumor did not unite to the shaft of the bone.—*Medical Times and Gazette*, December 29, 1877. W. T. B.

Horse-hair as a Drain for Wounds.—In a lecture on a case of excision of the knee-joint, Mr. Lister calls attention to the use of horse-hair in place of the drainage-tubes of rubber or the strings of catgut. It was proposed for this purpose by White, of Nottingham, in the *Lancet* of December 2, 1876. It is especially useful in wounds involving joints or the ends of resected bones, where the calibre of the rubber tube might be obliterated by the pressure of the bones, and in cases where drainage is required beyond a time when catgut will be dissolved. It has an advantage, too, in that it can be reduced in bulk in accordance with the diminution of the serous discharge, by drawing out some of the hairs. In using it, a wisp of the hair of one-half the thickness required should be bent in the middle at a sharp angle and tied with a piece of carbolized silk, and introduced with a probe or dressing-forceps. Mr. Lister has used the horse-hair in other wounds, and employs it now in preference to the rubber tubes.—*The Lancet*, January 5, 1878. W. T. B.

TREATMENT OF TETANUS: *Two Cases of Acute Traumatic Tetanus treated by Nerve-stretching and Calabar Bean; Death.*—1. A boy of eighteen, who had the tip of the left index-finger crushed eleven days before, was admitted to the Royal Infirmary, Glasgow, on the 21st November, 1877, with the disease fully developed. Food, stimulants, and several doses of Calabar bean were followed in twenty-four hours by no improvement. Under chloroform the median, ulnar, and musculo-spiral nerves were exposed and stretched by the fingers, the wound closed, and dressed antiseptically. General spasms were less frequent, and swallowing easier. Calabar bean continued. Profuse sweating and high temperature exhausted the patient, and death ensued in forty-eight hours. 2. A drayman, aged thirty-five, exhibited marked trismus and other symptoms nine days after a laceration of the palm of the left hand by the wheel of a cart. Amputation of the hand and stretching of the three nerves of the arm (antiseptically) were done at once. One general spasm occurred on recovering from chloroform. For thirteen days there were no more spasms. The trismus disappeared. Temperature high. Calabar bean, by repeated injections, and chloral to cause sleep. Death in general convulsions.—Dr. Eben Watson, *Lancet*, February 16, 1878.

Two cases treated by this procedure are contributed to the *Lancet*, of March 2, 1878, by Mr. Nankivell, of Chatham. Both ended fatally, but the writer thinks there was good done in the first case, as opisthotonos ceased forty-eight hours after the operation. The one case concerned a laborer whose symptoms appeared ten days after a lacerated wound of the palmar surface of the middle finger. The median nerve was stretched in the wrist. Chloral was given, but not more than 20 grains every three hours. Death on eighth day. The other was a very acute case, beginning on the eighth day after a compound dislocation of the last phalanx of the thumb with laceration, for which amputation was advised. Median nerve stretched as before, and thumb amputated. Death next day.

In the same journal Mr. A. P. Born, of St. Kitt's, West Indies, reports three cases of traumatic and two of idiopathic tetanus, all but one of which recovered under the administration of hydrate of chloral and cannabis indica in rapidly-increasing doses. He advises commencing with chloral, xxx gr., in water, ℥j, and extract of Indian hemp, ij gr., in pill, every three or four hours (in an adult), and to increase the former by 15 grains and the latter by 2 grains until the desired effect is produced, "when the spasms will be few and far between, the abdominal muscles almost normally flaccid, and the mouth opened to at least an inch; the patient is then in a state of stupor from which he can be roused to take nourishment." Sixty grains of chloral and 40 grains of Indian hemp is a full dose in fairly severe cases. The drugs should be discontinued cautiously, the frequency rather than the quantity being gradually diminished. In addition to this medication Mr. B. enjoins the utmost quiet, a dark room, and avoidance of draughts; the frequent administration of liquid food warmed, and brandy 4 to 6 ounces in a day, to be increased in quantity if the pulse indicate it. No purgative should be given.

A case in which chloral was the only drug used, no stimulants, and milk the only food, is reported by Mr. Archibald Lawson, of Halifax. The patient was a boy of ten years, who received an incised wound of the instep of the left foot, implicating the extensor tendon, and one almost severing the little toe (from a scythe). The symptoms were well marked on the eighth day after. The quantity of the drug averaged 8 grains every hour for three days, then somewhat less. On the fourteenth day symptoms abated, and two weeks later recovery was complete.—*Idem*, p. 283.) W. T. B.

Extirpation of the right Scapula.—Mazzoni reports (*Gaz. Med. di Roma*, A. III., No. 6) this case, and gives the results of 22 similar operations, five of which were fatal. A man, 29 years of age, had a painful swelling of the right shoulder. Resection of the head and neck of the humerus had been already done, and several fistulæ existed when M. saw him. On dilating the sinuses he found the scapula necrosed, and by means of a long, horizontal incision he was able to peel out the entire bone. Healing of the wound in 70 days, with satisfactory use of hand and forearm.—*Centralblatt für Chir.*, 11, 1878. W. T. B.

Treatment of Effusions into the Knee-joint by Aspiration.—M. Dieulafoy, after studying the history of 150 cases, expresses these conclusions: The evacuation of effusions into the knee-joint, by puncture with the aspirator-needle, is entirely safe, if the operation is properly performed—i. e., if the diameter of the instrument does not exceed that of the No. 2 needle (1^{mm}.02). In fact, a needle of this size does no harm. The introduction of air is impossible, since the fluid passes from one closed cavity, the joint, into another, the aspirator, in which a vacuum exists. If accidents follow, they are to be attributed to the employment of an instrument of larger size, to unnecessary manipulation of the joint, or to use of the limb too soon after the puncture. Effusions due to external causes, whether bloody or not, disappear generally after one or two aspirations. Fibro-serous effusions necessitate a more prolonged treatment, and from one to six punctures. It is desirable to apply an elastic bandage to the joint before operating, leaving exposed the place of puncture. This point is on the outer side of the patella, two-thirds of an inch from its border, and on a level with its upper surface. After removal of the fluid, compression should be made by means of a bandage over a layer of cotton. In but one of 150 cases has any accident supervened.—*Gaz. Hebd.*, 1878, No. 8. W. T. B.

Inoculability of Malignant Growths.—Novinski (Inaug. Diss., St. Petersburg, 1877) states the following conclusions as the result of many experiments on dogs and horses: 1. There is no doubt as to the possibility of inoculating medullary carcinoma and myxo-sarcoma. It is accomplished by means of the smallest possible incision in the skin (5^{mm} long), and the insertion of fresh portions of the tumor. 2. The piece to be inserted should not exceed two to three millimetres in circumference. 3. The elements of carcinomatous tumors act probably as infecting agents when thus placed in the healthy tissues. 4. The conditions essential to the success of the experiment are the selection of animals of the same species, and tissues of the same sort as those in which the growth exists. 5. Fatty degeneration is more active in the inoculated growths than in the "mother-tumors." 6. In all successful inoculations the wound healed by first intention, but suppuration ensued on the degeneration of the inoculated portion.—*Centralblatt für Chirurgie*, No. 12, 1877. W. T. B.

Traumatic Hernia of the Lung; Ligature and Excision; Recovery.—A man, aged 24, received a stab wound in the ninth intercostal space (left), penetrating the pleural cavity, and a portion of lung protruded. He was seen three days later. Dyspnœa, with slow and small pulse. No vesicular respiration at the base of the lung. Tumor of the shape of a mushroom, of the consistence and appearance of liver-tissue. Respiration and coughing did not affect its volume nor form. Ligature applied and tumor cut off. The wound healed in 28 days. Seven months later there was no trace of the lesion beyond the cicatrix in the skin. M. Cauvy, who reported the case, considers this accident a fortunate complication of penetrating wounds of the thorax. It prevents bleeding, and the entrance of air, and transforms a penetrating into a non-penetrating wound. Fatal consequences have followed the reduction of the lung. Ligature and excision effect a more prompt cure than an expectant method of treatment.—*Gaz. Hebd.*, 1878, No. 8. W. T. B.

Iodic Purpura.—M. Fournier describes a rare phenomenon which sometimes results after the ingestion of iodide of potassium, partaking of the evolution and character of purpura, and which he has observed in three cases. The first patient had taken iodide of potassium three times, the first interval lasting four months, the second, eleven months. On all three occasions, a purpuric exanthem appeared almost immediately after the medicine was taken, and disappeared completely upon its suppression. In the second case, four successive administrations of the iodide were followed four times by the same purpuric eruption, which disappeared as soon as the medicine was abandoned. In the third case, at three resumptions of the iodide, with intervals of three months, the purpura appeared; and furthermore, each quotidian augmentation of the dose was followed by fresh crops of purpuric spots. The dose employed was 1 to 3 spoonfuls of a solution 1-20. The conclusions are that: 1. In some cases the internal administration of iodide of potassium determines a petechial eruption, which merits the name of iodic purpura or petechial iodism. 2. The purpura is almost constantly on the anterior surfaces of the legs. It is always discrete, and, composed of small, miliary, bloody spots, is unaccompanied by local or general symptoms, and disappears spontaneously after two or three weeks.—*Gaz. Méd.*, 8, 1878. E. F.

On Peritonitis and Sub-peritoneal Phlegmon of Blennorrhagic Origin.—Dr. Fancou (Arch. de Méd., September and November, '77) arrives at the following conclusions concerning the inflammatory complications which may affect the peritoneum and sub-peritoneal cellular tissue: Peritonitis and sub-peritoneal phlegmon should be ranged among the possible complications of blennorrhagia. The inflammation is propagated from the urethra to the peritoneum or sub-peritoneal cellular tissue by the vas deferens, vesiculæ seminalis, prostate, perhaps also by the bladder, ureters, and kidneys. They may thus be termed tertiary complications of blennorrhagia. Blennorrhagic peritonitis has been observed to commence in the pelvic region in the recto-vesical cul-de-sac, or at the internal inguinal ring. It may remain localized, and terminate in recovery, or become general, and cause death. Sub-peritoneal gonorrhœal phlegmon has been observed in the lumbar fossa, at the inferior portion of the internal iliac region, and of the anterior abdominal wall. Its termination is by resolution or suppuration. The treatment consists in energetic antiphlogistic measures, notably the employment of ice; pus should be evacuated at as early a period as possible, so as to prevent burrowing and greater destruction of tissues.—*Gaz. Méd.*, 5, 1878. E. F.

Ischæmia in the Treatment of Mammary Cancer.—M. Bouchut maintains that, by systematic compression of the breast in cancer or adenoma, the capillary circulation may be so suspended that gradual atrophy results. He employs a compressive cuirass of soft india-rubber, supplemented by several layers of wadding.—*Gaz. Méd.*, 8, 1878. E. F.

THEORY AND PRACTICE.

Treatment of the Vaso-paralytic Diarrhœas of Cachectic Diseases.—Under the name vaso-paralytic diarrhœa, Bonfigli comprises those which occur principally in cachectic patients with nervous affections, and which consist of frequent serous evacuations. They resist astringents and narcotics, and are not accompanied by a coated tongue. At the autopsy a slight hyperemia of the intestinal mucous membrane is found, without any other change. It is due to a paralysis of the vaso-motor nerves of the intestinal mucous membrane, produced by a diminution of the force of the corresponding nerve centres, or by the participation of the whole nervous system in the general cachexia. As a proof of this nervous origin, he calls attention to the fact that the ablation of the cerebellum in animals constantly produces diarrhœa. It is the most frequent proximate cause of death in the cachectic insane. It resists all known remedies. Profiting by the experiments of Sasse, which have demonstrated that the chlorate of potash augments the contractility of the muscles of the vascular parietes, he has experimented with this remedy, and has come to the following conclusions:

Chlorate of potash exerts a favorable action on vaso-paralytic diarrhœas. It is necessary to employ it for a long period, and, in refractory cases, increase the doses, in order to cause the diarrhœa to disappear completely. When the remedy is discontinued, all the favorable effects disappear, unless the general condition has been improved. If its use is resumed, its favorable action reappears. In grave cases of cachexia, connected with great nervous depression, the diarrhœa diminishes, but does not completely cease. In obstinate cases there are alterations of the vascular parietes (amyloid or fatty degeneration), or ulcerative lesions of the mucous membrane. These require an energetic and prolonged use of the remedy. It is of no use if the diarrhœa is kept up by an active process of the mucous membrane, catarrhal enteritis, etc. By analogy, the chlorate of potash should have a favorable effect in the diarrhœa of the aged, in cholera, and in the serous fluxes of hot countries. The dose varies from 2 to 10 grammes in 24 hours, according to the gravity of the case.—*Abeille Médicale* and *Jour. des Sciences Méd. de Louvain*, 10, 1877. G. R. C.

Miscellany.

Schroeder on Ovariotomy.—In the *Berliner klinische Wochenschrift*, Dr. Schroeder reports 50 cases of ovariotomy, performed between May 25, 1876, and February 24, 1878. In the mortality table of these cases he deducts 3, which died of cancer on the 10th, 19th, and 49th day after the operation. Of the remaining 47 cases, 7 died. The most remarkable point in the report is the fact that, of 33 patients operated upon in the Lying-in Institution, only 1 died. The building is described as old, overcrowded, occasionally infected with puerperal fever, and in every respect unfavorable. Yet not a single case of infection occurred. The one death was due to intra-peritoneal hæmorrhage, which proved fatal on the 19th day. Dr. Schroeder attributes his success under such disadvantages to the observance of absolute cleanliness, and to the perfect control exercised over the persons and instruments concerned in the operation. Carbolic spray is used during the operation and at the subsequent dressings of the wound. Only five persons are present at the operation, besides the assistant who administers the anæsthetic, which, by-the-way, is chloroform. All possible sources of infection are scrupulously avoided. The operation is done at half-past seven o'clock in the morning, before other patients have been visited. The pedicle is always tied with silk and returned into the abdomen, and the wound completely closed. Drainage of the peritoneum is not considered necessary in any case, and is thought to be sometimes injurious. There is usually vomiting on the day after the operation, but it rarely continues. The temperature often remains normal, and in no case did it exceed 100°. The pulse rarely exceeds 100. In the last 23 cases operated on there was only 1 death.

The American Medical Association.—The annual meeting of this Association will be held in Buffalo, June 3d. A large attendance from this city is expected. The following papers will be presented at the meeting of the Surgical Section:

Address by Henry H. Smith, M. D., Chairman of the Section, on "Certain Points in the Pathology of the Bones, including Tubercles." On "Disease Germs, their Nature, Origin, and Relations in Cases of Wounds," by B. A. Watson, M. D., Jersey City. On "Septicæmia after Resections," by D. H. Weeks, M. D., Portland, Me. On "Tracheotomy without Tubes," by Henry A. Martin, M. D., Boston, Mass. On "Identity of Hospital Gangrene with Diphtheria," by John T. Carpenter, M. D., Pottsville, Pa. On "Permeability of Entire Alimentary Canal by Enemata, with some Surgical Applications," by Robert Battey, M. D., Rome, Georgia. On "Irritation of the Metatarsal-Phalangeal Articulation in Valgus of the Great Toe," by Frank H. Hamilton, M. D., New York. On "The Process of Repair in Wounds with and without Antiseptic Treatment," by Frederick Hyde, M. D., Cortland, N. Y. On "Extirpation of the Thyroid Gland," by Julius F. Miner, M. D., Buffalo, N. Y. On "Fractures at the Wrist," by John H. Packard, M. D., Philadelphia, Pa. On "Pathology and Treatment of Cancer," by Theodore A. McGraw, M. D., Detroit, Mich. On "Perityphlitic Abscess," by D. M. Clay, M. D., of Shreveport, La.

The Chairman, Dr. Henry Smith, requests that all papers to be read before the Surgical Section be forwarded to him, No. 1800 Spruce Street, Philadelphia.

Appointments, Honors, etc.—Dr. Joseph G. Richardson has been elected Professor of Hygiene in the University of Pennsylvania. Dr. H. T. Hanks has been appointed Lecturer on Obstetrics in the Dartmouth (N. H.) Medical College. Dr. R. P. Rea has been appointed Professor of Anatomy in the Chicago Medical College. Drs. Joseph E. Janvrin and H. Goldthwaite have been appointed Assistant Surgeons to the Woman's Hospital, on the staff of Dr. Bozeman.

T. B. Crosby, M. D., has been elected President of the Hunterian Society for the ensuing year. The Fothergillian gold medal of the Medical Society of London has been awarded to Dr. J. Milner Fothergill for the best essay on "The Antagonism of Therapeutic Agents." Dr. Hughlings Jackson has received the diploma of the Marshall Hall Prize of the Royal Medical and Chirurgical Society, for his investigations into the pathology of the nervous system. Charles West, M. D., has been elected President of the Royal Medical and Chirurgical Society for 1878–'79. Erasmus Wilson, M. D., has been elected President of the Medical Society of London for the ensuing year. Mr. Liebreich has resigned his position as Ophthalmic Surgeon to St. Thomas's Hospital. Dr. Ranke, Docent in Surgery at the University of Halle, and assistant to the Clinic of Professor Volkmann, has been invited to the Professorship of Surgery in the University of Gröningen, which he will probably accept.

Women in the British Medical Association, etc.—The harmony and prosperity of this powerful association are seriously disturbed over the question of admitting women to its meetings. Two ladies have already been legally elected members, and now objection is made to granting them the ordinary privileges of membership. Dr. Wilson Fox has resigned in consequence of the decision of the Committee of Council that they had no power to prevent members from attending the meetings. Other resignations are threatened in case the obnoxious members are allowed to exercise their rights.

At an extraordinary meeting of the Royal College of Physicians, held March 18th, a motion by Sir George Burrows, to the effect that the college should not grant women licenses to practice medicine, was carried by an overwhelming majority.

Sir Joseph Fayrer has denied the statement commonly put forth by the advocates of the women doctors, that they are necessary in India, because medical men are denied access to women in a professional capacity. Sir Joseph says he never had any difficulty in obtaining access to patients who needed his services. He thinks midwives are wanted there, but not female doctors.

Recent Graduates.—In addition to the list of graduates published in our last issue, we find the following reported:

Rush Medical College, Chicago	129
University of Maryland	100
University of Nashville	90
University of Louisiana	55
Columbus Medical College	50
Chicago Medical College	47
McGill University, Montreal	27
Atlanta Medical College	24
Detroit Medical College	20
Woman's Medical College, Chicago	7
	549
Previously reported	1,389
Total	1,938

A Source of Revenue for Dispensaries.—From the report of the New York Dispensary for the year 1877 we learn that the sum of $765.75 was collected from both male and female patients in the class for venereal and skin diseases, who paid willingly ten cents for each prescription. Only .05 per cent. of the men and .27 per cent. of the women were furnished medicine gratis. From the sale of bottles $241.30 was realized. The total amount received from these two sources was $1,007.05, more than half the expense of "medicines and other supplies for the apothecary shop," which was $1,616.86. Dr. Sturgis, the House Physician, considers the success of the plan of charging for medicine assured, and recommends that it be extended to patients of other classes.

Journalistic Notes.—The *Iowa Catlin* is the title of a monthly medical journal recently established at Osceola, Iowa. Dr. Edward Lawrence is editor. Dr. Priest has retired from the *Toledo Medical and Surgical Journal*, and Drs. Collamore and Currey have become associate editors. Dr. W. L. Nichol has retired from the *Nashville Journal of Medicine and Surgery*. Drs. Miles and Bramble have severed their connection with the *Cincinnati Medical News*. Messrs. Macmillan & Co. announce a quarterly journal of neurology, to be entitled *Brain*. The editors are to be Drs. Bucknill, Crichton-Brown, Ferrier, and Hughlings-Jackson.

Oleum Gynocardiæ.—This is the proper name of the Chaulmoogra oil, a remedy which has been employed for centuries by the natives of India for the cure of leprosy and other skin diseases. In an account of it, given in the *Medical Times and Gazette*, April 6th, it is said to have been used with considerable success in leprosy, scrofula, and constitutional syphilis. The dose of the oil is five or six drops, gradually increased. In skin diseases it is also applied externally. The oil is obtained by expression from the seeds of *gynocardia odorata*, now officinal in the Indian Pharmacopœia.

A Drainage Inspection Society.—An association, numbering already 418 members, has been formed in Edinburgh, for the purpose of securing thorough periodical inspection of the drainage of the houses of members. Such an organization, employing competent inspectors, might be of immense sanitary value to the entire community, in the prevention of the many diseases that take their origin in defective sewers and drains. The plan is worthy of imitation.

Destruction of Life by Wild Animals.—Sir Joseph Fayrer, in a paper recently read before the Indian Section of the Society of Arts, states that he has ascertained from government returns that during the year 1875 no less than 20,805 persons and 46,805 head of cattle perished in India from the ravages of wild beasts. Of this number, over 17,000 human beings were killed by the bites of snakes.

Pregnancy at Eight Years.—The *Gazette Hebdomadaire*, of March 8th, reports a case of extraordinary precocity in a girl eight years of age. She was born fully developed, and with hair on the pubes, menstruated at four years of age, and was seduced and became pregnant at eight. The pregnancy resulted in a mole containing a well-characterized embryo.

Ditain, a New Drug.—The bark of the *Alstonia Scholaris*, a native of Java, has been found to contain an active principle, the physiological effects of which resemble those of curare. It is said to be an antipyretic, a vermifuge, and a poison. It has the property of paralyzing the intra-muscular terminations of the motor nerves and the spinal cord at the same time.

Bloodless Tracheotomy.—Dr. G. Poinsot reports, in the *Lancet* of March 23d, a case in which tracheotomy was performed without the loss of a drop of blood until the trachea was opened, with a knife. All the structures above the trachea were divided with Paquelin's thermo-cautery, at a dull-red heat.

A Monument to Claude Bernard.—The Paris Société de Biologie has appointed a committee to solicit subscriptions for the erection of a suitable monument to perpetuate the memory of the illustrious savant, of whom the whole French nation is justly proud.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from March 14 *to April* 13, 1878.

McClellan, E., Major and Surgeon.—Assigned to duty as Post Surgeon at Fort Vancouver, W. T., relieving Surgeon C. T. Alexander. S. O. 27, Department of the Columbia, March 13, 1878.

MIDDLETON, P., Captain and Assistant Surgeon.—Relieved from duty in Department of Texas, ordered before the Army Medical Board, New York City, for examination for promotion, and after examination report by letter to the Surgeon General. S. O. 72, A. G. O., April 6, 1878.

JESSOP, S. S., Captain and Assistant Surgeon. Granted leave of absence for one month from June 1, 1878; and his resignation accepted to take effect June 30, 1878. S. O. 74, A. G. O., April 9, 1878.

BARTHOLF, J. H., Captain and Assistant Surgeon.—Assigned to duty as Post Surgeon at Fort Lapwai, Idaho. S. O. 27, C. S., Department of the Columbia.

VICKERY, R. S., Captain and Assistant Surgeon.—Granted leave of absence for four months, with permission to go beyond sea. S. O. 58, A. G. O., March 18, 1878.

LORING, L. Y., Captain and Assistant Surgeon.—Relieved from duty in Department of Arizona, ordered before the Army Medical Board for examination for promotion, and, on completion thereof, report by letter to the Surgeon General. S. O. 59, A. G. O., March 19, 1878.

POPE, B. F., Captain and Assistant Surgeon.—Relieved from duty in Department of Texas, ordered before the Army Medical Board, New York City, for examination for promotion, and after examination report by letter to the Surgeon General. S. O. 72, C. S., A. G. O.

CORSON, J. R., Captain and Assistant Surgeon.—Granted leave of absence for one month. S. O. 63, Department of the East, April 8, 1878.

HARVARD, V., First Lieutenant and Assistant Surgeon. — Granted leave of absence for six months, with permission to go beyond sea. S. O. 71, A. G. O., April 5, 1878.

BURTON, H. G., First Lieutenant and Assistant Surgeon.— Assigned to duty at Camp McDowell, A. T. S. O. 26, Department of Arizona, March 18, 1878.

Obituary.

DR. AUGUSTUS H. CENAS, Emeritus Professor of Obstetrics in the Medical Department of the University of Louisiana, and one of the founders of that school, died January 10th.

PROF. ERNST HEINRICH WEBER, the distinguished physiologist, died in Leipzig, January 26th. He was born in Halle in 1795, and had been attached to the Leipzig University for sixty-two years.

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Original Communications.

ART. I.—*Abscess of the Liver.*[1] By J. C. DAVIS, M. D., one of the Visiting Surgeons to the Northeastern Dispensary.

THE usually-received opinion among medical men is that suppurative hepatitis belongs essentially to intertropical regions; while this may be true as a rule, inquiry into the subject will show that it is frequently met with in regions that, in respect to climate, are far from tropical. "Neither is hepatic abscess as frequent in hot countries as the older writers" would lead one to believe.

It is to the writings of medical men in India that we have chiefly to look for our knowledge of this subject; they having had the most favorable opportunities for studying the disease and its morbid anatomy. The classical works of Budd, Frerichs, and others are made up from observations of the disease as met with in European countries, and among returned Indo-Europeans.

The question is yet open to discussion, whether the circumscribed hepatitis which leads to abscess is idiopathic or deuteropathic. The literature of the subject, both *pro* and *con*, is adorned by names high in authority.

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[1] Read before the New York County Medical Society, February 25th.

In treating this part of my subject, I can do little more than give a compilation of the opinions of others; as my field of observation has been in a country where popular prejudice against *post-mortem* examinations in private practice has precluded any investigation of the dead body.

I propose to make a cursory review of some of the alleged causes, but shall dwell more particularly on the surgical treatment, as on its early employment, I believe, will depend our success.

History.—The history of liver abscess shows us that its surgical treatment is of great antiquity; it dates back to the time of Hippocrates. He says: "When abscess of the liver is treated by the cautery or incision, if the pus which is discharged be pure and white the patients recover, for in these cases it is situated in the coats of the liver; but, if it resembles the lees of oil, they die." The truth of this assertion is confirmed, in great part, by the experience of to-day. Hippocrates was conversant with the use of the trocar, as he recommends cutting down to the third rib from the last, and then to make a perforation with the trocar. He further states that liver abscesses are less dangerous when they open externally; more so when they open internally; and most of all when they open both internally and externally.

Erasistratus gives us an example of bold surgery when he recommends "cutting, and laying bare the liver, and applying the remedies directly to the part affected."

Paulus Æginata also writes extensively respecting liver abscess. He gives the symptoms, and points out the diagnosis of the different regions of the liver that may be inflamed, mentions the appearance of rigors as indicative of the pus formation, and recommends "the continued application of cataplasms to promote the opening of the abscess."

Areatus mentions the pain in the shoulder, and gives his explanations of its cause—"That the liver being enlarged, and becoming heavier than natural, drags down the diaphragm to which it is attached, and thus stretches also the pleura from its upper adhesions, whereby pain is produced." Frequent mention is made of this disease by other writers, down to the time of Avicenna. After this, all departments of knowledge were lost in the long night of superstition; the only branch of medicine which seems to have received attention was that of chemistry. When the light of knowledge again dawned, it was in the south of Europe; as it spread northward, it moved away from the home of abscess, so that we find no mention of it, until commerce had reached out and grappled its possessions in the East; since which time, the medical men of the East India Companies have kept the world well informed respecting the course and nature of this disease.

Geographical Distribution.—The disease is met with along the shores and among the islands of the Mediterranean; on the east and west coasts of Africa; in the East Indies; the Sunda Islands; China, Japan, and the mountain steppes of Thibet. In the Western Hemisphere it prevails in the West Indies, and along the coast of the Spanish Main. It is very frequent on the table-lands of Mexico, but seldom met with on the western coast of Mexico, South America, or in the Polynesian group of Islands. It is much less frequent on the Western Continent than on the Eastern. It is much less frequent in certain of the West India islands than others of the same group, under the same climatical influences: as of heat, rain-fall, direction of winds, geological formations, etc. Many cases of abscess of the liver are met with in Iceland.[1]

Major Tulloch, in his reports, says that in the island of St. Helena diseases of the liver are far more prevalent than in the West India islands, though temperature is lower and more uniform, and though other diseases are more rare. The disease is prevalent in the little island of Granada, where it is three times as frequent as in others of the West India group. The East Indies—Bombay and the Madras presidencies—would seem to be its favorite home. It is very prevalent at Alexandria and Cairo in Egypt. In the Mauritius it also prevails to a great extent, while Madagascar, near by, is comparatively exempt. It is not infrequent along our southern rivers.

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[1] It is said that one-sixth of the population of Iceland are affected with hydatid cysts in the liver. It is to the inflammation of these cysts that the abscess is due.

While this difference in the prevalence of the disease among certain islands and groups of islands is a fact, it is thus far unexplained. Is it in the nature of the soil, water, miasmatic influences, or customs of the people? Or is it due to the influx of a people from the north, who, in their transplanting, have forgotten to leave their appetite and their customs in the land of their birth? It has been my privilege to meet with 36 cases of abscess of the liver, of many of which I had sole charge; several I saw in consultation, and others through the courtesy of the attending physicians. These cases have all occurred within the last 10 years, and the greatest number of them since 1873.

My field of observation was at Zacatecas, Mexico, a city of 50,000 inhabitants, situated among the mountains on the great plateau or table-land. It is within the tropical line, but at so great an elevation that we had given the climate of the temperate zone. In order that you may comprehend its climatical conditions, I will give a synopsis of the most prominent points relating to them. Zacatecas is a mining city. The mean temperature of extremes is 51° Fahr.; the mean temperature of the year 60° Fahr. The barometric pressure is $22\frac{8}{10}$ inches, the variations of which, unlike those at the coast, are not $\frac{8}{10}$ of an inch during the year. Hygrometer: relative degree of humidity ranges from 42 to 46 during the dry season, and from 46 to 60 during the rainy season. The greatest amount of annual rain-fall, from 1870 to 1875, was 25 inches; the least 13 inches (English). Yet, under all these favorable conditions of climate, the mortality from diseases, brought about by an almost total disregard of sanitary laws, was fearful to contemplate; it amounted to 67 deaths per 1,000 for three consecutive years previous to 1869. Over one half of these were among children of five years and under. That civic miasma has any predisposing influence in abscess, other than its tendency to promote digestive derangement, is improbable; but that it does influence its march, as well as that of all other diseases, needs no argument to prove. We find in Mexico, as in other countries, that suppurative hepatitis is confined almost always to the people of the towns and barracks. Whether this is due to their more dissolute habits, coupled with other influences pertaining to town life, or to other and more remote causes, is a question yet to be decided.

Causes.—I approach this branch of my subject with diffidence, for in treating it I am treading on disputed ground. Among the causes enumerated are dysentery, ulcers, or other gangrenous affections of the abdominal organs, phlebitis in the radicles of the vena porta, uterine phlebitis, also phlebitis in the systemic veins; operations such as those for hemorrhoids and hernia; fractures of the cranium; embolism, worms, indigestions, the scorbutic cachexia, alcoholic poisoning, and heat.

That suppurative hepatitis follows dysentery in a large number of cases is a fact admitted by all observers of this disease in tropical countries; also that many cases are met with which have not been preceded by dysentery. The theory, first advanced by Ribes and ably seconded by Budd and others, is that the cause of the circumscribed hepatitis is the transmission, by the portal vein and the veins going to form it, of pus[1] or vitiated secretions from an ulcerated intestinal surface.

Other writers, of no less note, claim that the hepatitis is set up in the liver from other causes, such as alcohol, heat, and that depraved condition of the system which is induced by malaria and scurvy. "The association of dysentery with abscess is most frequent in the East Indies, and in countries of similar climatical conditions." The French surgeons in the province of Oran, in Algeria, state that "hepatitis, and consequent abscess, were frequently coincident with dysentery" (Aitkin). "In cases not simply of hyperæmia and bilious congestion, but of abscess, it is probable that a certain number are consecutive to dysentery, and are caused by the absorption of putrid matters from the intestines which are arrested by the liver and there set up suppuration; there is no true pyæmia or inflammation of the vena porta as a rule" (Parkes). Macpherson, Sir James McGrigor, Marshall, Martin, and other writers speak of the frequency with which abscess is preceded by dysentery or diarrhœa. "The comparative frequency of the occurrence of hepatic abscess may be seen from the following statement: In Calcutta General Hospital they occur at the rate of 13.1 per cent.; in the Medical College Hospital at the rate of 25 per cent.; in the Bombay General Hospital at the rate of 40 per cent.; and in the Madras Presidency at the rate of 50.97 per cent. (Annesley); Macnamara, in Madras, 50.9 per cent. . . . In Ceylon, 28.8 per cent" (Aitkin). Rouis's researches on endemic suppuration of the liver (1860) gives the following: That out of 203 cases of abscess 179 were preceded or accompanied by dysentery, or 88.177 per cent. Martin says that abscess is more apt to follow ulcerations of the head of the colon than of other portions of the intestines. Louis gives 15 cases, some of which were accompanied by ulcers in various parts of the alimentary tract, or 44.444 per cent. Haspel gives 25 cases of abscess, in 13 of which ulcers were found in the intestines. Frerichs writes "that abscess may follow phlebitis in the most varied regions of the body, in the upper as well as the lower extremities; it may depend upon the phlebitis resulting from venesection, wounds, fractures and likewise uterine phlebitis . . . . that there are usually anatomical lesions of other organs, which we must take into consideration in order perfectly to understand the pathological anatomy of the disease and attain a clear insight into its nature. The most important and constant of these are found in the gastro-intestinal tract, the mucous membrane of which is usually the seat of exudation processes and ulcerations. In most cases these lesions are limited to the large intestines, and occasionally the lower portion of the ileum is also diseased; while in the upper part of the small intestines and in the stomach the only morbid appearances observed are slight hyperæmia and catarrh, and even these are by no means frequent occurrences. The large intestines, however, in the majority of cases of abscess of the liver, present morbid alterations, especially in tropical countries; all gradations are met with here, from simple redness to brownish black discolorations, and from œdematous thickening and slight superficial exudations to the most extensive ulcerations and gangrene."

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[1] We now know that "pus, as pus," cannot be absorbed.

Against the theory known as that of Budd, a disclaimer is set up by several writers, based on the fact that epidemic dysentery frequently prevails in countries known as temperate, and that it is not followed by abscess; although extensive ulcers and gangrene of the mucous membranes are met with in many cases. These writers evidently lose sight of the essential conditions under which the disease prevails in hot countries, such as race, habits of life, local and general surroundings. There is a difference of degree, if not in kind.

In the tropics, almost all diseases are sudden in their onset, high in degree, and rapid in their march; while, in the temperate zones, the opposite is generally the rule.

Johnson, Annesley, and Morehead are of the opinion that the hepatic affection precedes the dysentery; while Henoch and others claim that the same poison that causes the dysentery sets up complications in the liver which result in abscess.

Medical geography has demonstrated that there are certain disease realms, whose limits are defined by isothermal lines, atmospheric conditions, and physical climate; acute inflammation of the liver and dysentery are among these diseases. It has been demonstrated that, in the tropical disease realm, inflammation of the liver has a tendency to run into suppuration. It is also shown by writers on tropical diseases that, where there is an average temperature of 80° Fahr., a high dew-point, and a luxuriant vegetation, there we will find dysentery and acute liver affections. Can any one doubt for a moment that a dysentery resulting under such influences is different in its essential conditions from a dysentery generated in a temperate climate? It is evident that dysentery differs greatly, and that it is governed by season and place, and that the pathological changes are more marked in the tropics than in the temperate zones.

Lumbricoides.—That the round worms which infest the intestines are sometimes the cause of abscess the following report will show:

"Maria Jimenez[1] entered the hospital of San Pablo, 20th of the present month; twenty-five years of age; confined two months ago.

"*Autopsy.*—Abdomen—the liver very much enlarged, and of a dark-slate color, occupying both hypochondria; in the substance of this viscus, and in all its extension, were found 37 ascarides lumbricoides; some were from 6 to 8 inches in length, others of 5, of 4, and the smallest 2 inches; some were of the ordinary diameter, and others thinner; 5 were lodged in as many distinct abscesses which contained pus, of which 3 were in the right and 2 in the left lobe; the liver was softened, and of a dark-red color in its interior; some of the worms were immediately beneath the capsule. The gall-bladder contained none, and was filled with a light-colored liquid. In the small intestines were found 32 worms of the same kind as those found in the liver; 9 in the œsophagus, of which some were still alive. None were found in the large intestines. The spleen was four times its usual size."

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[1] *La Union Médica*, Mexico, May, 1858.

A preparation in the museum at Netley shows a specimen of the same kind (Aitkin).

Indigestion.—Indigestion is given a prominent place among causes by the late Dr. Jimenez, of the city of Mexico. He says:[1] "It is not ordinary intemperance, neither is it every indigestion, that gives rise to liver-abscess. Two of our wards are full with victims of alcohol, suffering from the many diseases incident to its abuse; yet it is very rare that we are offered an occasion of observing abscess of the liver, even among those who suffer from disease of this organ; on the other hand, cases of indigestion are very common, even of the most grave character, that are not disposed to that termination. What produce it are the disorders following a debauch (*francachelle*), in which are eaten to repletion indigestible substances, such as our people use on these occasions, and are drunk to intoxication alcoholic liquors, as pulque, which is in itself of difficult digestion. If this happens to a person little or not at all accustomed to such excesses, it is almost certain to be followed by an attack of sporadic cholera, and its pernicious influence on the liver is much to be feared. . . . That the suppuration has followed almost immediately the cause aforementioned, without the well-marked symptoms of hepatitis, makes us doubt at times the necessary intervention of this as a link in the chain of phenomena, and excites the suspicion that the same indigestible materials, carried to the liver by the portal system of veins, in quantity and conditions improper for the function of that gland, determine the suppuration without permitting us to perceive the intermediate inflammation, at least with the array of symptoms that we are accustomed to see."

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[1] Clinical Lecture.

In a thesis of Abrahan Diaz Gautierez, Mexico, 1869, is cited the following circumstance: "At a family reunion various persons partook of a dinner, at which were served chile (capsicum annum) and pulque[1] (the sap of the agave Americana). Some of the guests ate and drank to excess; all suffered more or less from its effects; hepatitis resulted in three instances; notwithstanding that prompt antiphlogistic measures were taken, it was impossible to stop the march of the inflammation, and it ran on to suppuration. In one case the abscess was punctured, and recovery followed. In the other two cases—man and wife—the abscess opened into the bronchia; one died, the other recovered."

Dr. Budd also observes: "Amid the continued excesses at the table of persons in the middle and upper classes of society, an immense variety of noxious matters find their way into the portal blood that should never be present in it, and the mischief which this is calculated to produce is enhanced by indolent and sedentary habits. The consequence often is that the liver becomes habitually gorged."

High Temperature.—That a residence in tropical climates predisposes to sub-diaphragmatic diseases is well known. There is a popular opinion that this predisposition to liver-abscess depends upon a high temperature. As a first link in the chain of causes this is undoubtedly true, as all material substances are under its influence. Heat may be called a remote, not a direct cause of tropical disease. The thermometer shows us that the difference in the normal heat of the body in the tropics and in the temperate zones is scarcely one degree. Many portions of our own country, where a high degree of temperature prevails for many months in each year, can be adduced, that are noted for their salubrity; as Western Texas and the valley of the middle and lower Rio Grande; the country at the head of the Gulf of California; and Fort Yuma, in Arizona. This post is located at the junction of the Colorado and Gila rivers. At this place the thermometer often marks 105° Fahr. in the shade; a temperature of 100° is reached daily for several weeks at a time; the mean temperature for July, 1870, was 98.53°;[1] several months in each year show a maximum, such as 110°, 112°, and as high as 119°. The atmosphere is exceedingly dry.[2] The mean annual amount of rainfall is but three inches during the year. A common saying on our southeastern frontier is "that there is but a sheet of brown paper between the Rio Grande valley and the infernal regions, and that at Fort Yuma the hens lay boiled eggs." In several of the Mexican States, the thermometer marks a high degree of heat from April to September. Yet abscess of the liver is among the rarest of the rare diseases.

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[1] The sap of the agave, in different stages of fermentation, is called "pulque."

It is not to heat alone that we must look for a solution of the problem of causation in liver disease, but to the concomitants, such as dryness or moisture, the prevailing winds, geological formation, paludal and other noxious influences, as bad food, customs of the people, and the neglect of hygienic laws.

We meet with liver-abscess at Calcutta and the city of Zacatecas in Mexico, two cities situated under the same parallel of latitude, the first built upon the bank of a large river, and but a few feet above the level of the sea, subject to a high degree of heat, a high dew-point, malarious influences, and bad sanitary surroundings. The latter is built upon the slopes of two mountains, at an elevation of 8,160 feet above the waters of the Gulf of Mexico, with a temperature twenty-five degrees less than the former, where dew is never seen, without a marsh, river, or running stream within forty miles; but *is subject* to the pernicious influences that always arise from squalor and ignorance among the lower classes.

I can offer but one explanation in conformity with the foregoing statements. It is that we have two kinds of abscess, the results of different causes; the one brought about by an inflammation of a high grade, in a person suffering under the depressing influences of what may be called the *tropical dyscrasia*, the exciting cause being cold or a debauch, accompanied with immoderate indulgence at the table, or other excesses.

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[1] Surgeon-General's Report.

[2] Hammond's "Hygiene."

The second variety is due to *thrombosis* or to *emboli.* It is to these that we must look for an explanation of Budd's theory, and of almost all of the alleged causes.

Premonitory Symptoms.—The premonitory symptoms are the same as those accompanying functional disturbances of the liver and stomach; but in the majority of instances there are no symptoms to call the attention to these organs until the disease is far advanced; other cases run on to suppuration (large abscesses existing) without the attention of the patient having been called to the seat of his malady.

The symptoms are variable, depending in great part on the location of the inflammation; the most constant are want of appetite, nausea, thirst, slight fever, a feeling of weight; sometimes dull, at others sharp pain in the hepatic region; this pain is variable, sometimes constant, at others intermittent, sometimes aggravated by movements of the patient: percussion and pressure will almost always give rise to it. If the abscess be deep in the gland, very little, if any, pain will be felt; if near the surface of the organ, the pain is sharp and lancinating; pains are felt under the scapula and in the shoulder, but only in those cases where the abscess is superficial and near the convex surface.

Among the objective symptoms we have a heavy and anxious expression of countenance, sometimes a slight discoloration of the skin. I have never seen jaundice, but it is sometimes found with abscess; urine heavily loaded with urates; a perceptible fullness, with widening of the intercostal spaces in the hepatic region, is plainly seen in some cases; in others, only on the closest measurement can any difference in the two halves of the body be detected. Percussion will determine the limits of the liver; it is sometimes but little enlarged, at others extends upward as high as the third rib; again its superior surface maintains its normal position, while the inferior dips down into the abdomen, reaching the ileum;

in others it extends both upward, downward, and laterally, thrusting up the ribs and giving them a peculiar arched appearance. If the abscess be situated near the surface of the superior portion of the organ, we will have embarrassed respiration, short hacking cough, and pain on taking a deep inspiration, and sometimes hiccough. If the case is seen in time, auscultation will detect a friction sound, as in pleurisy: this is an important sign, when it can be found, as it indicates the possibility of the abscess pointing and opening into the lungs. A circumscribed puffy spot over the hepatic region is an indication that the abscess tends to the surface. During the treatment of my third case, my attention was called to the fact that pressure along the course of the ninth rib, limited to about three inches, gave pain. In nearly all of the cases that came under my observation afterward, I found this sign; soreness or pain was always found on pressure over that part of the rib nearest to the abscess. If the abscess was in the centre, or tending to the concave surface of the gland, and distant from the ribs, no pain could be elicited by this pressure along the ribs.

Hectic or suppurative fever, when present, presents the same array of symptoms as in other local diseases that are undermining and drawing upon the forces of the patient. These symptoms are by no means present in every case. In one of my own, no rigors were present. Of 289 cases cited by Jimenez, 266 had rigors, 252 had night-sweats; and in 11 cases neither night-sweats nor rigors were present.

Sir Ranald Martin gives a most admirable description of the disease, as too often met with in practice. "The disease is sometimes preceded by a perceptible falling-off in the general health, indicated by emaciation, dry cough and embarrassed respiration, loss of appetite, the complexion gradually assuming a muddy, sallow hue; but it more generally comes on in the midst of apparent health. We seldom, indeed, see the patient till inflammation has actually commenced, when he generally complains of a feeling of abdominal uneasiness, but more particularly of the epigastric region and that of the liver, with some degree of fever, preceded by slight rigor or ague; but all these may be so slight as too often to attract but little of the patient's attention. Perhaps he consults his physician on account of *diarrhœa*, supposed to result from errors in diet; medicine affords some relief, and the patient proceeds in his ordinary occupation for days, or, when the action is less acute, for weeks, though under great depression of the mental and corporeal energies, till at length his altered appearance, hacking cough, permanently dry skin, invincibly rough, furred tongue, and morbid taste—all expressive of a suppressed and depraved state of the secretions—attract some more serious notice on his own part and that of his family. The real nature of the disease may still remain a secret to both patient and physician, and it may not be till actual tumor of the liver, a marked succession of rigors, or profuse and clammy sweats announce in unmistakable terms the formation of abscess, that either party becomes awake to the impending danger, and then it is too late."

Diagnosis.—A distended gall-bladder, hydatid cysts, aneurisms of the aorta, cancer of the stomach or pyloric orifice, cancer of the liver, the circumscribed collection of fluid in the diaphragmatic pleura, peri-hepatic abscess, and peri-nephritic abscess, may be confounded with liver abscess. The differential symptoms of each of these diseases must be taken into consideration, in those cases where we are in doubt as to the true nature of the malady. Fluctuation is difficult to detect in most cases of abscess of the liver; when found it is one of our most reliable signs, yet we are not sure from this sign alone that we have an abscess of the liver—it may be a hydatid cyst, a peri-hepatic or peri-nephritic abscess. I have been informed of five instances, all occurring in Mexico, where a mistake in diagnosis was made by men of distinction in the profession. In one case an aneurismal sac was punctured with a fine trocar, a distended gall in three cases, and in one a cancer of the liver. One of these cases was in the practice of Dr. Schultz, of the city of Mexico. Drs. Clement, Garonne, and Jimenez were called in consultation. Abscess of the liver was diagnosed; the tumor was punctured by Dr. Schultz, in the eighth intercostal space. On withdrawing the trocar, bile flowed from the canula; as the gall-bladder was emptied, the canula could be felt grating on numerous calculi.

Eight or ten days afterward, says Dr. Jimenez, the patient visited me, and was to all appearance well.

In the three cases mentioned, no bad results followed the puncture of the gall-bladder; yet cases are recorded where death followed from peritonitis.

Prognosis.—The prognosis is always grave, and "never better than doubtful." Abscess of the liver, when left to itself, may remain intact, or seek an outlet through one or more of the following channels—their frequency is as in the order mentioned: bronchia, external surface, intestines, peritoneal cavity, pleura, gall-bladder, vena cava, and pericardium. It sometimes seeks an outlet in the axilla, and in the iliac regions.

Out of 481 cases, the abscess burst into the bronchi[1] in 128, or 24.532 per cent. Of the cases having this termination, one-half *generally* prove fatal, or 12.266 per cent. This is the most favorable course for the pus to take, when it seeks a natural outlet. In 88 cases, the abscess opened upon the external surface, or 18 per cent.; 62 into the intestines, or 12.681 per cent.; 41 into the peritoneal cavity, or 8.523 per cent.; 18 into the pleural cavity, or 3.742 per cent.; 3 into the pericardium, and 2 into the vena cava. In 139 cases, the abscess remained intact, or 28.690 per cent. Of the cases at Zacatecas, 6 opened into the bronchia and 5 recovered; 1, upon the external surface, proved fatal; 1, into the colon, with a fatal result, and 2 pointed externally and were opened by incision. Of these, 1 pointed in the seventh intercostal space, about 3 inches from the ensiform cartilage. In the other, the pus had traveled down the sheath of the right rectus abdominus muscle. Both cases recovered.

Of the small number of abscesses that open into the stomach or colon, about 60 per cent. have a fatal result; nearly all cases where the opening is into the pleural cavity prove fatal, while those opening into the peritoneal cavity must almost necessarily cause death. Yet a case of Dr. Stokes is mentioned, where recovery took place under the opium treatment.

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[1] In the inflammation of the lung tissues consequent upon this termination, there is no absence of chlorides in the urine.

Treatment.—The chief object in the treatment of circumscribed hepatitis is, of course, to conduct the inflammation to a successful termination and thereby prevent suppuration; but just how to do this is a problem yet to be solved. If the case be seen early—in the stage of active hyperæmia—general bleeding and purgatives, followed by local depletion, might in many cases accomplish the object in view. Our treatment should, however, be governed by the circumstances attending each case. It should vary with climate and place, as well as in different persons, and the supposed cause should also influence our line of conduct. Among the remedies very highly spoken of by Stewart, in India, is the muriate of ammonia, given in scruple doses. It has failed in my hands in every case but one. But the insidious nature of the disease is such that suppuration has already taken place in many instances before the physician is called to the case. Medicines are now, as a rule, useless. Our endeavor should be to place the patient under such dietetic and hygienic conditions as will best enable him to withstand the coming drain upon his system. Quinine and acids will now prove of benefit.

The question now arises whether we shall attempt to give an outlet to the pus by operative procedures, or leave the case to the resources of Nature. We have seen that Nature gives us but little hope; yet, if the indications are those pointing to an early opening of the abscess through the bronchi, noninterference is to be recommended; these being absent, our endeavor should be to give an outlet to the pus by surgical means. To accomplish this object we have several methods at our disposal, all of which have had their advocates. We have that of Annesley, Bégin, Graves, Horner, Trousseau, Récamier, that known in Mexico as Jimenez's, with Vertiz's modification, and the aspirator. The advocates of these methods may be divided into three classes: those who operate only when adhesions have formed, those who seek to secure adhesions before operation, and those who operate whether adhesions be present or not. We have still another class, who would leave the case to Nature, opposing all operative treatment.

Annesley, being satisfied that adhesion existed, made a free incision into the abscess, and, when emptied of its contents, filled the cavity with lint, and changed this dressing as occasion required. He reports several successful cases by this method. The method of Bégin "is to make an incision two or three inches in length over the site of the abscess, the different layers to be carefully divided down to the peritoneum; the peritoneum is next slit up on a director to the same extent as the first incision; the wound is then to be filled up with *charpie*, which is to be left in position until such time as adhesions are formed between the peritoneal surface of the liver and abdominal wall, when, it is claimed, the abscess may be opened without danger of the pus passing into the peritoneal cavity." The operation known as that of Graves is the same as that of Bégin in its first steps, only he stops a little short of the peritoneum, then fills the wound with lint, and awaits the pointing and irruption of pus at that part. Horner's is essentially that of Bégin; but Horner goes further, and connects the capsule of the liver to the edges of the wound by sutures. The liver being thus fixed to the side, a trocar is plunged into the abscess; the canula is left in position for a couple of days, when it is removed and a flexible catheter is substituted and a bandage applied. Récamier's method is that of successive cauterizations with caustic potash, to procure adhesions; then open the abscess by incision or by puncture. Another plan is that recommended by Trousseau for securing adhesions in cases of hydatid cysts: the thrusting into the liver, over the abscess, a number of acupuncture needles to excite adhesions, then using the trocar or incision. Jimenez's operation is that by puncture, *but always in the intercostal spaces.* Vertiz's modification is to introduce through the canula a drainage-tube, which is fixed in position and left until such time as the lessened suppuration indicates the gradual closing of the cavity, when the tube is withdrawn a little, from day to day, *until the flow of bile* through the tube shows that all pus formation has ceased; it is then removed entirely and the puncture closes. Budd and Martin recommend that, when the abscess points externally, it should be left to empty itself, as a natural opening gives better results than operative procedure at the hands of the surgeon.

In Mexico all these methods have been employed, excepting that of Horner. The reasons alleged against that of Annesley and Bégin are that the alteration in the pus, brought about by contact with the air, sets up a train of symptoms so formidable in their nature, and so disastrous in their results, that they outweigh all the advantages of facility and simplicity of the operation; also, that the adhesions formed are easily torn asunder by the retraction of the liver after emptying the abscess, and that, when not torn, their elasticity allows of a separation of the lips of the incisions, so that they no longer preserve their parallelism and allow the escape of pus into the peritoneal cavity. Those alleged against the methods of Graves and others are that they are slow in securing adhesions; objection is also made to their want of firmness and to their elasticity; but, for puncture, as practised in Mexico, we claim that adhesions *are not a requisite but a detrimental condition.*

The methods now employed in Mexico have been reduced to two: that of puncture, after the Jimenez method, and that of puncture with the "aspirating trocar." Which method will give the best results is yet to be determined. The operative procedure is simple. The presence of pus having been established by exploratory puncture or fluctuation, the patient should be directed to assume the horizontal posture near the edge of the bed, or table, with the body projecting over the side if practicable. If the patient be timid, an anæsthetic should always be used.[1] The skin is to be drawn aside over the site of the puncture, and the trocar thrust boldly in until the cavity of the abscess is reached. On the withdrawal of the trocar the pus will sometimes spurt out, at others slowly trickle from the canula; the drainage-tube is now introduced into the cavity of the abscess through the canula. It is a good plan to use a coil, or long piece of tubing, and to mark the drainage tube at about 8 inches from the end that is to be employed; the tube being in the abscess, the canula is withdrawn, and the tube cut off at the point designated. This simple procedure of dividing the tube after the canula is withdrawn will prevent the serious accident of the slipping of the drainage tube into the cavity of the abscess. The free extremity is now slit by a crucial incision; through the four ends threads are passed, the ends turned down and secured by adhesive strap to the skin, while the threads are each wound around strips of plaster and secured at a distance from the puncture. The abscess is now to be washed out with warm water, and after with a carbolized or iodide solution; a wad of carbolized lint is placed over the puncture, and secured by a loose bandage. The dressing must be renewed at least twice a day, the cavity thoroughly washed and dressed as before. The utmost cleanliness should be observed in all minor details.

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[1] The *first stage* of etherization is all that is required.

In using the aspirating trocar, the proceeding is very much simplified. I always wash out the cavity of the abscess with a carbolized or iodized solution, taking the precaution of having the patient assume different positions for a minute or two at a time, in order that the fluid may come in contact with every part of the cavity; this is important if we are to get any benefit from the use of these solutions. The trocar should be of 5 or more inches in length, and of sufficient diameter to allow of the passage of shreds of connective tissue without clogging. A common fault with most aspirators is that the coil of wire, used to keep the rubber-hose (with which the trocar is attached to the instrument) from contracting, is too small to allow a free escape of the broken-down tissues.

The patient should be examined with care every day, and whenever the symptoms, such as pain, weight, or uneasiness in the hepatic region, or an increase in the volume of the liver, are noticed, the abscess must be again aspirated; if the abscess is progressing favorably toward a cure, the intervals will be lengthened, and the quantity of pus at each operation lessened. The number of times that puncture will be required is impossible to determine; an approximate idea may be formed by the quantity and character of the pus, and the general condition of the patient. Cases occur, in which a single operation is sufficient; in others, 10 and 12 punctures have been made at intervals of from 10 days to as many weeks. Cases are recorded which have run on for years, finally ending in recovery. In one of my own cases, the tube was worn for 9 months. A case[1] is reported in which 400 ounces of pus were drawn off at different times by the aspirator, the patient dying on the 177th day of his illness. Flint[2] mentions a case of a patient of Dr. J. R. Lothrop, in whose liver an abscess was found to contain after death 288 ounces of pus.

Draper[3] reports a case occurring at the Roosevelt Hospital; the abscess extending downward to near Poupart's ligament, it was opened by incision, and gave exit to 90 ounces of pus; the patient recovered.

In all of the cases observed by myself, the pus was of a chocolate-color, excepting in one instance: this was in a patient of Dr. Hierro's; in this case the pus was of a cream-color. Should doubts arise respecting the character of the pus, these may be cleared up by a microscopical examination; if it be that of liver abscess, broken down liver cells will be found.[4]

Prognosis after Operation.—Anything more than a probable prognosis (even after operation) cannot be given. If the liver be free from adhesions, the prognosis is comparatively good; if extensive adhesions exist, it is of the worst. A small abscess, although the liver be free from adhesions, will only admit of a guarded prognosis; the result is dependent upon too many contingencies. If the pus be thick, chocolate colored and slightly tinged with blood, it is a good sign. If it be thin, flaky, and of a light brown or muddy color, it is a bad sign. If it becomes fetid, it is of the worst omen. If the edges of the puncture take on a gnawed appearance, and an erysipelatous blush makes its appearance, it foretells that grave dangers are approaching. A persistence of the symptoms, such as hectic and general depression, indicates that other abscesses than the one opened exist. On the other hand, the good symptoms after puncture are so plain "that he who runs may read."

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[1] *Lancet*, September 1, 1877. By E. H. Condon.

[2] Flint's "Principles and Practice of Medicine."

[3] *Hospital Gazette.*

[4] Dr. Fenwick gives in the *Lancet* for November, 1877, some directions how, and what, reagents are to be used in order to detect the liver cells in the pus.

I will in as brief a manner as possible give the history of two cases, illustrative of the two methods heretofore mentioned.

In March, 1874, I was called, in consultation with Drs. Gonzalez, Lares, and Hierro, to see the Padre V., Mexican, age forty-seven, *an ex-claustrated friar*. A short thick-set man; said that he was, and always had been, frugal and abstemious in his manner of living. He had first noticed a dull pain in the hepatic region, some six weeks before; supposing the pain to be of a rheumatic origin, he had taken some domestic remedies. Two weeks since, called in Dr. Gonzalez, who, suspecting the nature of his malady, had requested that Dr. L. be called; remaining still in doubt, Dr. H. and myself were called. The patient had an anxious expression of countenance indicative of abdominal trouble, complexion sallow, but not jaundiced; face thinner than was natural, skin hot and dry; decubitus dorsal; voice thick and feeble; no swelling of feet or ascites; pulse but little accelerated and feeble. Respirations natural, thermometer 100° Fahr. Had nausea and sometimes vomiting. Had had rigors, fever, and night-sweats; little or no appetite, slight thirst, tongue covered with a thin white coating. Soreness on pressure over the region of the liver. There was marked tenderness over a limited spot between the ninth and tenth ribs, and on a line with the posterior margin of the axilla; at this point was a boggy spot, about the size of a silver half-dollar; but, whether this spot was the consequence of repeated examinations or the disease, we were unable to determine. Diagnosis, probable abscess of the liver. We advised delay to see if the progress of the disease would make the diagnosis clearer. Ten days after we again met; general condition the same as at first visit; the spot remained unchanged; we now had superadded pain under the scapula, and a dull feeling of weight over the right shoulder; no difference of the two sides, on measurement over the hepatic region. Percussion gave evidence of slight augmentation in bulk of the liver; bowels constipated; urine loaded with urates.

Patient was anæsthetized (chloroform), an exploring trocar was thrust in at the boggy spot heretofore mentioned; the presence of pus was ascertained. A large-sized trocar was now thrust in a direction upward and backward, but the operator failed to reach the cavity of the abscess. He then requested me to take the trocar; changing its direction slightly, I thrust it in at its full length before it entered the abscess. A thick, chocolate-colored pus, slightly tinged with blood, was drawn off, amounting to about eight or ten ounces (not measured). Warm water was thrown into the cavity, and the treatment, heretofore detailed, carried out with great care. The patient made a speedy and complete recovery. This is by no means an exceptional case; many similar ones can be adduced.

The following case belongs to that large class so admirably pictured by Sir Ranald Martin:

Tranqualino, a Mexican, age forty years. Dealer in boots and shoes, married; had never had syphilis; drank to excess ten years ago, since which time had been abstemious; says that twelve months before I had treated him for a pain in the region of the last dorsal vertebra, that was relieved for a time, but that, after a few weeks, the pain returned, when he sought other advice; no relief following, he had been, during the year, under the treatment of several physicians. On the 10th of March, I was again called to see him. He was sitting in his store, superintending his business. He now presented that peculiar aspect of abdominal trouble, sallow skin, heavy eye, and furrows about the angles of the mouth. Thermometer 103° Fahr., pulse 120 and feeble, skin dry, tongue clean, urine normal in quantity, high-colored, and throwing down a heavy deposit on cooling. On removing his clothing and lying down on his back, a glance was sufficient to note the enlarged and arched appearance of the hypochondriac region. Measurement gave a difference of three-quarters of an inch in the two sides. Percussion showed that the liver was but little above its natural limits, while its lower border was two fingers' breadth below the costal line, rounded and thick to the touch; tenderness on pressure over the course of the ninth rib for a distance of three fingers; no puffiness or discoloration; intercostal spaces were widened; no fluctuation could be detected. His appetite was good; little or no thirst except at night; complained of pain over the false ribs of right side; had a slight chilliness at night; moderate fever, but profuse night-sweats. Diagnosis, unmistakable abscess of the liver. Two hours later, I punctured with the largest-sized trocar of Dieulafoy's aspirator, drawing off 68 ounces of thick, chocolate-colored pus. The point selected for puncture was in the ninth intercostal space, about three inches posterior to the axillary line; the direction of the trocar was upward and toward the spinal column. The usual treatment, as before mentioned, was carried out. He now complained, for the first time, of a pain under the scapula and top of the shoulder. The following morning (the 11th) had slight heat of skin, tongue a little coated at the base; some soreness over the point of puncture; less pain on pressure along the rib; no deposits in the urine; pulse 100; has had 12 evacuations from the bowels, light-yellow color, and pasty. On the 12th, morning, had had 8 evacuations since last visit; yellow and abundant. No deposits in the urine; no fever, no pain; a slight, hacking cough; appetite good; no medicine. Patient went on improving in strength and spirits. On the 20th, 10 days after the puncture, complained of pain in the back, and over the region of the liver; liver projected slightly below the costal border. I immediately aspirated, and drew off 44 ounces of pus, same in character as that at the first operation. I now washed out the cavity thoroughly, several times, until the water came away untinged with pus, and injected several ounces of a solution containing iodin. comp. tincture ℥j, to aqua ℥viij. It was retained 10 minutes and withdrawn. The case progressed from this time favorably to a successful issue. He was, when I last saw him, a strong, robust, and, to all appearances, a healthy man.

The gentlemen of the society will note that, in the history of the two cases just cited, no allusion is made to the presence or absence of adhesions. This is contrary to the received teachings of the day, as great stress has been laid upon this point. Operators have puzzled their brains how to bring about this result in the speediest manner, as firm adhesions have been looked upon as the only safeguard against the escape of pus into the peritoneal cavity. In respect to the operations where incisions were made, adhesions were a necessary antecedent; but it is not so in those where the trocar is used. Experience in the management of this disease in *Mexico* has taught the profession of that country that better results are obtained in operating upon a *non-adherent* liver, and that there is no danger of the escape of pus into the peritoneal cavity, *if the puncture be made in an intercostal space.* If the liver is non-adherent, the abscess cavity is compressed from all sides, and a gradual closing of its walls takes place; this, together with granulation tissue, soon obliterates it by the union of its opposite walls; whereas, when extensive adhesions exist, no such action takes place, or in an imperfect manner; the inner walls of the abscess continue to form pus, and the patient is gradually worn out by the discharge, or other complications arise, and the patient dies.

Against this, it is urged that the liver tissues are non-contractile; but experience shows that, when a large abscess exists, and the inferior border of the liver reaches below the umbilicus, if you plunge a trocar into the abscess, and withdraw 40, 50, or more ounces of pus, and then search for the inferior margin of the gland, it will be found at the edge of the ribs.

Whether this retraction be caused by atmospheric pressure, or contractility of the liver tissues, is a matter of indifference so far as the practical result is concerned.

For all purposes of prognosis, after operation, the canula will show at the time whether adhesions exist or not. If the liver be non-adherent, the free end of the canula will have a to-and-fro motion, corresponding with the liver movements in inspiration and expiration. If the liver be adherent, the free end of the canula loses its pendulum-like motion, and will move synchronously with the ribs.

Notwithstanding the array of names high in authority among the older surgeons who opposed operation, we have those of Frerichs, Murchison, Cameron, Murray, Fayrer, Saacs, Ward, Clement, Jimenez, and the Mexican school of surgeons, who say "that we should in all cases, when there is a visible fluctuating tumor, operate at once." Dr. Murchison says: "When symptoms of abscess coexist with uniform enlargement of the liver, but with no distinct tumor, or bulging, if there be any local œdema, or obliteration of an intercostal space, or acute pain, always localized to one spot, when the patient takes a full inspiration, it will be well to operate; but if there be no such œdema, or obliteration, or pain, it may be well to wait, as the enlargement may possibly be due to multiple abscess: or if there be but one abscess, it is doubtful if it will be reached." Dr. Cameron says: "Hepatic abscess may be considered practically under two heads, suspicion and certainty, faith and sight. In both, alike, we are told not to interfere, but to stand by as spectators of a duel between hectic fever and an enfeebled constitution, contenting ourselves with supporting the latter in its struggles, and using local applications to favor pointing. It is admitted that few survive such a combat, and that while it is going on a daily increasing collection of pus is eating out the liver, or endeavoring to eat its way into the lungs or bowels, the patient being liable at any moment to destruction from rupture into the pericardium, peritoneum, or pleura. Yet we are told that it is less dangerous to run these risks, than to venture on puncture in a plainly discernible abscess, or to hazard a search for one deep-seated.

The question here arises: What are we to do in an acute case of circumscribed hepatitis, when well-marked symptoms of suppurative fever arise? I answer, unhesitatingly, ascertain if possible the seat of the abscess, and, unless well-defined symptoms are present, which point to the lungs as the probable outlet for the pus, *puncture.*

Puncture with a fine trocar, and, if successful in the search, introduce, as nearly in the same place as may be, a large trocar and aspirate the abscess without delay. This is, however, set down in some of our text-books as an unwarrantable and hazardous practice.

In a somewhat extended research, I have found but one case where an exploratory puncture was followed by death. In a theoretical point of view, the practice of exploratory puncture may seem hazardous; but, practically, it is not. In the aspiratory trocar then we have a certain means of discovering abscess, as well as one that may be called *almost* absolutely free from danger.

We see this trocar thrust into the pericardium, into tubercular cavities in the lungs, into the intestines, and into the joints; why not, then, into the liver? Our ovariotomists have shown the surgical world what liberties may be taken with the peritoneum, so that we may exclude peritonitis from the probable dangers. In my experience—limited, it is true—in no instance has any untoward result followed exploratory puncture, but, on the contrary, an amelioration, and in some cases a complete cessation of symptoms, and a rapid restoration to health has followed. We are told that "acupuncture is a common remedy among the Japanese, Chinese," and among the native classes in India, in inflammation of the liver and abscess. Condon[1] reports four cases where relief followed exploratory puncture; Cameron[2] makes the same statements. A case bearing upon this point occurred in the person of Dr. Otal, at Zacatecas. A long and large-sized trocar was twice thrust into his liver in search of a supposed abscess, but failed to reach it. No unpleasant symptoms followed, and two days after the abscess burst into the lungs. The doctor speedily recovered.

In making an exploratory puncture, it is well to bear in mind that the symptoms pointing to the stomach are often fallacious in their significance, such as nausea, vomiting, pain, and fullness; these are frequently the result of pressure or sympathy. Statistics show that in abscess of the liver it occurs thirty times in the right lobe for one in the left; they further show that, in the majority of cases, it is situated in the posterior part of the lobe. I can recall several instances where the uneasiness and pain, the nausea and vomiting, all pointed to the epigastric region of the liver as the seat of abscess; but experience and the general law of its location led me to reject the seeming indications, and to puncture in the posterior portion of the right lobe with success.

We all know that the liver is, by its ligamentous attachments, firmly fixed to the diaphragm and to the vena cava, only permitting a sliding or to-and-fro motion; "that the stomach and intestines serve as a supporting cushion, through the influence exerted upon them by the abdominal muscles and atmospheric pressure;" that the same pressure is brought to bear upon the diaphragm through the medium of the lungs, and that the separation of the liver from the diaphragm is impossible; that they are always in contact, hence no danger is to be apprehended from the escape of matter when puncture is made through an *intercostal space.* Furthermore, if the abscess be near the surface of the liver, adhesions will have formed between the opposing peritoneal surfaces; if remote, the trocar must pass through the substance of the liver, and its track will be obliterated by adhesions before pus can again form in such quantity as to endanger its escape. Budd's objections to the operation as it was formerly practised (that of making a free opening into the abscess) are that the entrance of air into the cavity, mixing with the pus and blood, causes decomposition; that the air or decomposed pus set up grave constitutional disturbances, "and, if the abscess be large, a profuse, fetid, and continuous discharge, which may soon exhaust the patient."

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[1] *Lancet* for August, 1877.

[2] *Lancet* for August, 1868.

The operation, as now practised, is not entirely free from these objections; some air must necessarily enter the cavity when the trocar and drainage-tube are used. In some cases, where air has entered, no symptoms of pus changes or constitutional disturbances have followed; these were cases where adhesions were absent, and the cavity was gradually closing from day to day, as shown by measurements with the probe. In other cases, where all the signs indicating adhesions and large abscesses were present, these changes soon took place, as shown by the fetid pus, blood-poisoning, colliquative diarrhœa, and death. In one case, I punctured a large abscess with the aspirating trocar, where I had every sign of extensive adhesions. At the first operation I drew off ℥ viij of pus of a thick, chocolate color, with great relief to the patient, when, the trocar becoming obstructed, I was obliged to suspend the operation. Eight days after, I again punctured and ew off ℥ xxxij of pus; the patient expressed himself as greatly relieved. Rigors, night-sweats, and diarrhœa all ceased. After an interval of eight days, I again punctured and drew off ℥xviij of pus. The patient now became rebellious and unmanageable, and swore by all the saints in the Spanish calendar that he would not submit to further puncture, but that I must introduce a drainage-tube.[1] Explanation and expostulation were unavailing. I introduced the drainage-tube; decomposition of the contents of the abscess almost immediately followed. From the day that the tube was introduced, the patient's course was downward to the grave.—He died sixteen days after. The mortality attending this form of abscess is appalling. Of 674 cases reported by different observers, some of which had undergone operation, 517 proved fatal, or 75.222 per cent.

Reported cases of later date, although limited in number, give more favorable results. This improvement is due, undoubtedly, to mechanical skill in furnishing us with improved instruments, and to a growing change of opinion respecting the dangers of operative procedures, whereby early surgical treatment is employed.

Of 36 cases reported by Saacs, 19 recovered, 17 died; operated 21 times, 13 unsuccessfully, and 8 with successful results, or 33 per cent.; of the cases not operated upon, 10 opened into the lung; in 1 case absorption must have taken place. Immediate cause of death, exhaustion, in most of the cases; in 4, peritonitis from perforation. In a few others, pyæmia, and in a very few death, was caused by diseases having no connection with abscess.

Mr. E. H. Condon[2] reports 12 cases operated upon with the aspirator; 7 recovered and 5 died, or 58.334 per cent. successful. He observes: "It may be noted that 4 out of the 5 fatal cases were in a dying state when received by me under treatment, and the operation was resorted to as a *dernier ressort.*" Of the 36 cases at Zacatecas, 17 recovered and 19 died. In 6 cases, the abscess opened into the lungs, of which 5 recovered; 26 were operated upon; of these 12 recovered, or 46.153 per cent. Thirty of these cases were among males, and 6 were females. Their ages ranged from 21 to 55 years. It was not confined to any particular walk in life. The church, the law, and medicine, the soldier, the artisan, and the miner, the Penelopes and Clytemnestras, had all given their quota.

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[1] This man had heard of the case of Padre V., and that a drainage-tube had been used.

[2] London *Lancet*, for September, 1877.

ART. II.—*An Analysis of 112 Cases of Diphtheria, treated during the Last Two Years.* By GEORGE A. VAN WAGENEN, M. D., Newark, N. J.

DURING the last four or five years this disease has been endemic in New York and vicinity; rising, again and again, to the magnitude of a severe and very fatal epidemic, it has rapidly gained its acknowledged position, with scarlatina and cholera infantum, as one of the most malignantly fatal diseases of childhood. Anything, then, which can throw light on its etiology and pathology must be of interest, since our knowledge of and improved methods of treatment for the commoner morbid processes mark the true, practical advance of medicine.

Bacon quaintly says, in the preface to his "Maxims of the Law:" "I hold every man a debtor to his profession, from the which, as men of course do seek to receive countenance and profit, so ought they of duty to endeavor themselves, by way of amends, to be a help and ornament thereunto." "By way of amends," then, and in the earnest desire to be a "help thereunto," let me present the prominent points brought out by an examination of these 112 cases, of this lately so terribly fatal disease.

I have interrogated the cases in reference to the light they throw on the following points:

1. Etiology.
2. Part of dwelling in which the case occurred.
3. Season of prevalence.
4. Contagion.
5. Sex.
6. Age.
7. Number of cases in each family.

8. Number of children present who escaped contagion.

9. What proportion are respectively malignant, mild, and diphtheritic sore throat.

10. Location of membrane.

11. Average duration of membranous deposit.

12. Death-rate (in all its bearings).

13. How death was caused; or manner of death.

14. Number and variety of sequels.

15. Prevention, and treatment.

1. *Etiology.*—There can be little doubt that diphtheria may fairly be classed among the "filth diseases." Whether its poison is produced *de novo*, in decomposing masses of vegetable and animal tissue, or whether our sewers and cesspools are simply the hot-beds in which the disease-bearing spores are rapidly propagated, is a very nice question, and one which cases occurring in a large city cannot help us to solve. For, though many of these cases must have been exposed to cesspool gas, it is fair to suppose that the specific poisons of all zymotic diseases are constantly present in our air. However, that "filth" in its various forms is an important element in the development of this disease is proved in at least four particular instances by these cases. The first occurred at the house of an architect living in a healthy and cleanly portion of the city, and who prided himself on having ventilation, sewerage, and water supply as perfect as possible. Several loads of manure were dumped in the garden, about thirty-five feet from the well, with the intention of spreading them over the grounds before snow fell; but, as the mass became frozen, it was allowed to remain. As the snow melted in the spring, it carried a rich infusion of this filth into his well. So gradually had the water become tainted that the family still used it, though they noticed a peculiar taste, and considerable deposit on standing. March 17th, the first child had a mild diphtheria. March 26th, nine days later, the second sickened. The cesspools, well, and privy were pronounced all right at this time. April 7th, twelve days later, a third was attacked. April 10th, three days later, the fourth. April 12th, two days later, a fifth—the wife—had malignant diphtheria. I examined the garden myself then, and found lines which the ooze

from this manure-pile had taken in its course to the well. The water was found to be so foul that it appealed to the sense of smell, as well as that of taste. It deposited a considerable light-brown sediment on standing, which, under the microscope, proved to be manure *dêbris*, and great masses of confervoid vegetation. Here, undoubtedly, was the cause of all the trouble. Aqueduct water was substituted, and fortunately all recovered. One of the children also had scarlatina about this time, having been exposed to that disease. Such water undoubtedly prepares the system for a ready reception of *any* zymotic poison, and vastly increases the tendency to *any* morbid action.

The second instance occurred in a more filthy part of the city, in a basement-house, the back-yard of which is elevated some twelve feet above the land surrounding. In this yard, perhaps twenty-five by fifty feet, were two privies and a large cesspool. Indeed, the ground was so filth-loaded that, in attempting to put down a new cesspool, the older one caved in, and the privy followed. Being elevated above the surrounding ground, traces of the ooze were found on the walls and terraces of adjacent lots. Four cases of diphtheria occurred in houses whose garden-line is the boundary of this pest-hole, during August and September, and others in the immediate neighborhood. But on November 12th the first child, living on this lot, had malignant diphtheria, and died. A few days after a brother was attacked, and on the 16th, four days later, the baby. The same day three children living next door had diphtheria, one being malignant. Next day a child immediately back of this place was attacked, and finally died. On the 20th, three days after, another. On the 29th, nine days later, still another, living near by.

The third instance occurred on a low piece of land, on which water was pretty constantly standing, in a house without a cellar, and with stagnant water under it. Diphtheria prevailed in the neighborhood, and on March 15th the first case occurred in this house. On the 26th, 11 days later, two more children in the same room had it. April 7th, twelve days later, two more were attacked. April 15th, ten days later, a child on the floor above. The parents of this child immediately sent the others away, and saved them. On the 25th, ten days again, a child on the third floor sickened, and May 5th, ten days later, her two sisters succumbed. Not a child in the house escaped.

The fourth and last case, where local cause was patent, occurred near the above. The water-pipe had leaked, until the cellar immediately under the room where the family lived contained a pool of water covered with dark-green scum, and giving so foul an odor that the suggestion was made, before the cellar was examined, that the family who had charge of this part of the house might have buried their still-born child there.

No doubt other cases may have escaped notice, though I was in the habit of looking carefully for trouble of this kind.

2. The second point in reference to which I have examined these cases—*part of the dwelling in which cases occurred*—bears indirectly on the same subject. It is location as a cause, the former being local cause: 31, or ¼+, cases occurred on the first floor, *without cellar*, 12 on first floor, *with cellar*, 17 on the second floor, 10 on the third floor; 32 occupied a whole house. So that one-third of all the cases occurred on the first floor; one-fourth of all the cases occurred on the first floor, without cellar.

While no deduction can fairly be drawn that diphtheritic poison was *generated* by the conditions above described, since the disease prevailed in each of the neighborhoods attacked, yet it is proved beyond a doubt that dampness, with filth, is a most powerful predisposing cause, and that too much care cannot be exercised in having our houses entirely free from those subtile influences which have lately been described under the name of "House-Poisoning."

3. The third point is—*season of prevalence.*

January	had	11	cases.	July	had	8	cases.
February	"	12	"	August	"	10	"
March	"	6	"	September	"	4	"
April	"	9	"	October	"	4	"
May	"	8	"	November	"	16	"
June	"	8	"	December	"	26	"

If we divide the year into a warm, dry season, from April to September, and a cold, damp season, from October to March, we find: Warm and dry, 37 cases; damp and cold, 75 cases. December has the largest number, 26; June and July the least, each having 3.[1]

It is evident that heat is not a necessary element in the development of diphtheritic poison, but that it follows the season of scarlatina and morbili, rather than that of the summer zymotics.

4. *Contagion.*—The question "Is diphtheria contagious?" is so frequently asked, and is of such great importance, that the following figures become doubly interesting:

Of the 112 cases, 59 followed direct known exposure; 13 were probably exposed, as the disease was near by; 40 knew of no exposure.

Almost two-thirds can be accounted for by contagion. And, as later I will show the chances of a child exposed to be as three to one in favor of contagion, we must acknowledge that diphtheria *is very contagious.* So far as my experience with these cases goes, it bears a pretty constant relation to the malignancy of the case. As the breath becomes offensive the danger increases, and a malignant case will *usually* produce a malignant case: milder poison milder ones, though this is by no means always true.

In no case, so far as I know, was the poison carried in clothing, etc., from a distance; contagion was direct.

5. *In Reference to Sex.*—Fifty were males, 62 females. A difference too slight to be accounted for by a well-marked sex-preference of the disease, and not too large to be explained by the preponderance of female as against male children. At least the difference was never sufficiently marked to make it noteworthy.

6. *Age.*—The ages of these patients were as follows:

One year, 11 cases; 2 years, 5; 3 years, 9; 4 years, 7; 5 years, 11; 6 years, 6; 7 years, 7; 8 years, 14; 9 years, 1; 10 years, 3; 10 to 15 years, 14; 15 to 20 years, 8; 20 to 30 years, 7; 30 to 40 years, 5; 40 to 50 years, 3.[1]

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[1] These figures correspond with those of Wibmer for epidemic of 1868-'69, in Berlin.

Or, arranging them in intervals of 10 years:

One to 10 years, 74 cases; 10 to 20 years, 22; 20 to 30 years, 7; 30 to 40 years, 5; 40 to 50 years, 3.

This gives us 43 or ⅓+ under 5 years old, and 74 or ⅔— under 10 years. As years increase, then, the danger of contagion decreases; and, as a single attack does not exhaust susceptibility to this poison, it may fairly be classed as a disease of childhood.

7. Now, to get a better idea of the probable spread of the disease when it enters a family, let us take the number of households in which different numbers of cases occurred, and also the number (under 20 years old) who were present[2] and escaped.

The 112 cases occurred in 50 households, as follows:

One case, in 25 households; 2 cases, 13; 3 cases, 7; 4 cases, 1; 5 cases, 1; 7 cases, 1; 9 cases, 1; 12 cases, 1.

8. But, to get a true average, the eighth consideration, or *number of escapes*, must be added.

No escapes, in 16 households; 1 escape, 14; 2 escapes, 13; 3 escapes, 3; 4 escapes, 2.

It is evident from the above figures that, while in half the households only 1 case occurred, it was probably because the families were small, since there were 16 families in which none escaped; 14 in which only 1; and 13 in which only 2 did not suffer. It is plain that the entrance of this disease into a family of young children is almost, if not quite, as terrible as that of scarlatina.

9. *Severity.*—Since all the deaths among these cases occurred in the malignant type, it is important to know what

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[1] Where the history of a case was incomplete in any particular, I have dropped it out. This will account for a want of balance when adding some of the figures. These differences are so little that they cannot invalidate the result.

[2] By *present* I mean who went in and out of the room freely, or remained there.

proportion these bore to the whole number. I have therefore divided them into *malignant*, those in which the constitutional symptoms were marked; the membrane formed rapidly, and was very heavy; where the submaxillary and cervical glands were very much swollen, and the breath became rapidly offensive: *mild*, where the constitutional disturbance was moderate; the membrane spread slowly; the glandular enlargement was not great; and the offensive breath could be controlled by antiseptics. And, finally, *diphtheritic throat*, where there was little constitutional disturbance after the first day or two; where the deposit was not large; with glandular tenderness rather than enlargement. The cases were divided as follows:

Of the malignant,	there were 32,	or ⅓—
" mild,	" 46,	" ½—
" diphtheritic throat,	" 33,	" ⅓—

10. *Location of the Membrane.*—In 104 cases the deposit *began* on the tonsils, or some part of the pharynx; and of these 33 extended up into the posterior nares, and 14 downward into the larynx. In 4 the deposit *began* in the nares, of which all extended to the pharynx; but none reached the larynx. In 4 it *began* in the larynx,[1] of which 2 extended upward to the pharynx, and 2 remained in the larynx.

11. *Duration of the Membrane.*

Malignant cases (lived),	11¾ days.	Maximum, 21;	minimum, 7.
" " (died),	7+ "	" 15;	" 2.
Mild cases,	6+ "	" 14;	" 2.
Diphtheritic throat,	4½ "	" 8;	" 2.
Average of all cases,	6+ "	" 21;	" 2.

That is, the time that the membrane remains, unless the patient dies, bears a very constant relation to the malignancy of the disease.

12. *Death-rate.*—This I have examined in reference to 1. The whole number of deaths, 2; deaths from different varieties, 3; deaths according to location of membrane, 4; day of death, 5.

First, there were in all 17 deaths, or about ⅐ of all; but 7 of these cases were seen too late to do more than say the patient would certainly die; omitting these cases, the average is about $\frac{1}{10}$ of all. All deaths occurred from the malignant variety, most of them beginning as such. Of the 104 cases beginning in the pharynx, 14 extended to the larynx, and 10 of these last died; beginning in the larynx were 4, of which 2 died; beginning in the nose were 4, of which none died. As to the day of death:

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[1] The diagnosis of these cases was made only after a laryngoscopic examination, which showed the membrane.

Third day, 2 deaths; fourth day, 1; fifth day, 3; sixth day, 4; seventh day, 1; eighth day, 1; ninth day, 2; twelfth day, 1; eighteenth day, 1.

In reference to the ages of those who died:

Under 1 year, no deaths; 1 year, 4; 2 years, 2; 3 years, 2; 4 years, 1; 5 years, 1; 6 years, 1; 8 years, 4; 11 years, 1.

Nearly half were under 4 years old, while 1 of those 8 years, and 1 of 11 years, died of the sequel cardiac paralysis. These figures would seem to prove that the younger the child, the greater the danger, except in cases of very young infants, who did not seem predisposed to the disease. A number of cases occurred where such infants were present in the sick-room constantly, and were suckled by the mother, who also took charge of the sick child. But this conclusion must be modified by the fact that by far the greater number of cases occurred in children under 5 years old.

Examining this death-rate, we see that $\frac{1}{7}$, or about 14 per cent.,[1] died; of the malignant cases $\frac{1}{2}$, or 50 per cent., died; while none of the mild cases, and none of those described as diphtheritic throat, died. The danger of death bears a marked ratio to the severity of the symptoms. The passage of the membrane from the pharynx into the nares increases the danger. Two patients, who died of septicæmia, were poisoned by accumulations in the nares, which it was impossible to keep clear. The *most* fatal symptom is a deposit in the larynx. Of 18 cases, 12 died. Tracheotomy was not performed, for, in the two cases where it seemed to hold out a bare chance, the surroundings were such as to make it impossible to carry out the after-treatment as thoroughly as is necessary for success. As most of the cases died on the fifth and sixth days, the chances of recovery become better after those days are safely passed.

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[1] Oertel gives $\frac{1}{3}$, or 33 per cent., as the average for Berlin.

13. *Manner of Death.*

Septicæmia alone	2
Eclampsia	2
Cardiac paralysis	2
Asphyxia (carbonic acid poisoning)	10
Asthenia alone	1

14. *Sequelæ.*—Sequels occurred in 11 cases, or about $\frac{1}{10}$ of all. Nine followed malignant cases, or $\frac{1}{4}$ of the malignant cases had sequels. Two followed mild cases, or $\frac{1}{33}$ of the mild cases had sequels. None followed cases of diphtheritic throat. The lesions were as follows:

In 10 of the 11 cases there was paralysis of the pharynx.
" 7 " " " " " larynx.
" 6 " " " " " limbs.
" 2 " " " " " heart.
" 2 " " there were rheumatic pains.

The average duration of the membranous deposit on the throats of those who had sequels was 12¼ days. Five were males, 6 females. It is evident that, in these cases, danger from sequelæ was in close relation to the severity of the symptoms, and the length of time the membrane remained on the throat, which are nearly equivalent. That by far the most common sequel is paralysis; first of the pharynx, second of the larynx, third of the limbs, fourth of the heart. Both cases of cardiac paralysis died; one in the latter part of the same day it made its appearance; the other on the fourth day after it developed, death being caused by the effort of changing from one bed to another, the parents having been carefully warned not to allow the girl, who was eleven years old, to raise her head from the pillow. All the other cases recovered ultimately under strychnia and Faradaic electricity. Perhaps some cases were prevented, as I was in the habit of giving strychnia to most of the severer ones during convalescence, as a preventive of this troublesome sequel. There were no cases of suppurating cervical glands. Induration often remained for some time; but usually the glandular enlargement decreased *rapidly* as the membrane disappeared from the pharynx. There were no cases of acute desquamative nephritis of sufficient severity to give rational signs; and in none of the specimens of urine examined did I find tube casts, or albumen *persisting* for any time. It is evident that there is no such danger of either suppurating lymphatics or acute nephritis as attends scarlatina.

The symptoms of the disease, as manifested in these cases, would not come properly within the scope of this article; but there are some points on which I regret that my record could not be fuller, specially temperature and pulse. As the visits were made at different hours, on different days, and usually only once a day, the temperature taken could hardly be used as statistics. I may say in general that the temperature was highest at the onset, averaging from 39° to 39.5° C. (102° to 103° Fahr.); the highest being 41.3° C. (106¼° Fahr.). After the second day it fell, averaging from normal to slightly above that point. It was highest in malignant cases, where it probably resulted from septicæmia. If the temperature suddenly rose after its first fall, this rise was usually due to occlusion of the nares, with consequent septicæmia; or to a rapid spread of the membrane, when the fever, and usually a chilliness, may have been due to that systemic shock transmitted through the sympathetic nerves, which manifests itself by chills followed by fever when any considerable portion of the body is injured.

15. *Treatment used.*—I shall say as little as possible in reference to treatment; but, as the value of the above figures would be much impaired without some hint as to the methods used to keep down the death-rate, I give the treatment, confining myself to what was used in these cases. The profession has not settled, even in theory, on any thoroughly satisfactory line of procedure. The two extreme factions arm themselves, the one with carbolic acid, or some of its derivatives; the other with quinia and beef-tea; while the conservatives, fighting against neither, fight with both. The theory of the treatment was based on the desirability of three things, named in the order of their importance: *First*, to cause suppuration in the membrane, to make a croupous as near as possible a catarrhal diphtheria; *second*, to thoroughly disinfect the air

passages; *third*, to overcome the marked asthenia by which all cases of this disease are marked. To accomplish the first, vapor of water,[1] at a temperature of 49–53° C. (120–130° Fahr.) was inhaled continuously for 15 or 20 minutes each hour. In cases where the deposit of membrane was considerable, or very tough, a very hot poultice was applied externally, usually a compress wrung out of hot water, and covered with oil-silk. When the membrane attacked the larynx, the vapor was used constantly, the supply pipe being directed at right-angles to the face when it was not held between the teeth. I can say in favor of this method, recommended highly by Oertel in Ziemssen's "Cyclopædia," that in many instances where the membrane was light, and in some where it was heavy, the deposit broke down into a suppurating mass after 12 to 24 hours. In several instances the deposit returned when the vapor was omitted too early. Even in those cases which die, euthanasia is accomplished; and I am most confident that, in five of the six who recovered after membrane deposited in the larynx, this happy result was due to a most *constant* and *untiring* use of the vapor. The universal testimony was that it gave great relief, the objection being that it was tiresome. Having had the disease myself, I can add my testimony to the relief afforded. In an hour my nostril, where the disease began, was usually so full that I could scarcely breathe through it; but after using the vapor 15 to 20 minutes the plug of membrane was loosened, and could be driven out in a disintegrated condition. By care I was able to prevent septic absorption, and consequently was almost entirely free from fever after the second day, though one nostril, a portion of the pharynx, one tonsil, the uvula, and part of the roof of the mouth, were covered with a very actively developing membrane.

For disinfection, usually salicylic, sometimes carbolic, acid was used. Neither is a specific. The solution was made as strong as the patient could bear, and was used with the vapor as a spray in a steam-atomizer, as well as by gargling. Sometimes stronger applications were made. The steam-antiseptic-spray disinfected best, as the steam carried the medicine to every part of the diseased surface, while the vapor which escaped into the room was a carrier of the antiseptic, as it is of caloric when a large room is heated rapidly by dropping water on the stove. Nothing disinfected the room so rapidly as the antiseptic-steam-spray.

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[1] This is usually and popularly called *steam*, but, as the temperature of steam is 100° C. (212° Fahr.), it would evidently be impossible to inhale it.

The restoratives used were food—specially milk and beef-tea—and tonics—milk-punch, quinia, or iron and quinia citrate. All discussion of other methods of treatment, and their comparative values, would be out of place in an article of this kind, which simply gives some points of interest developed by examination of this particular 112 cases. Another item which bears directly on these, as on all other cases, is that of prevention, 480 grains of which some Solomon has claimed to be more effectual than a pound of so excellent a thing, even, as a cure. Twenty-six, or but little less than one-fourth, of these cases were directly due to preventible causes. We can no longer look on this and kindred diseases as accidents; they are the sequence of natural laws, a portion of the tax paid, by the dwellers in our large cities specially, for the filthy condition of the streets, sewers, and the dwellings in which their "great unwashed" live. Our citizens have yet to learn that it will pay them well to establish and maintain a thoroughly efficient sanitary bureau, and then comply with its requirements. The money now spent in caring, before and after death, for those who suffer from what are known to be preventible diseases, would more than pay for such a sanitary equipment as would banish these diseases altogether. When this conclusion is arrived at, as it will be in time, then, but not until then, can the profession behead the sister Gorgons, cholera infantum, scarlatina, and diphtheria, by destroying their common eye—FILTH.

The statistics of a single epidemic, collected in a single city, must almost of necessity be incomplete, and may even be incorrect in some particular, as compared with the disease in other places. These defects can be corrected only by other efforts made in the general direction of this one. The amount of information yearly lost to the profession by neglect of its members to examine their own cases collectively, and put the same on record, would, if recorded, soon give data from which those who have the happy faculty of generalization could deduce the laws of these diseases, and give us control of them. Sir Thomas Browne observed, in quaint English: "But the mortalest enemy unto knowledge, and that which hath done the greatest execution upon truth, hath been a peremptory adhesion unto authority." Authority is good, and they who consult it thoroughly and often are wise. The "peremptory adhesion" to it is *not* good. But we accept the authority of other men, while we modestly deny them and ourselves the authority of our collected cases.

In order that the facts here developed may be rapidly taken in by the eye, and compared, I have arranged them in tabular form as follows:

ANALYSIS OF 112 CASES OF DIPHTHERIA.

TABLES.

Local Cause.—Four instances, including 26 cases.

Situation.—First floor (without cellar), 31 cases; first floor (with cellar), 12; second floor, 17; third floor, 10; whole house, 32.

Months.—January, 11 cases; February, 12; March, 6; April, 9; May, 8; June, 3; July, 3; August, 10; September, 4; October, 4; November, 16; December, 26. Dry and warm, April to September, 37. Cold and damp, October to April, 75.

Contagion.—Known exposure, 59 cases; probable exposure, 13; none known, 40.

Sex.—Males, 50; females, 62.

Age.—1 year, 11 cases; 2 years, 5; 3 years, 9; 4 years, 7; 5 years, 11; 6 years, 6; 7 years, 7; 8 years, 14; 9 years, 1; 10 years, 3; 10–15 years, 14; 15–20 years, 8; 20–30 years, 7; 30–40 years, 5; 40–50 years, 3. 1–5 years, 47 cases, or ⅓. 1–10 years, 78 cases, or ⅔.

Number ATTACKED *in each Household.*—25 houses, 1 case; 13 houses, 2 cases; 7 houses, 3; 1 house, 4; 1 house, 5; 1 house, 7; 1 house, 9; 1 house, 12. Total, 50 houses, 112 cases. Average, 2¼ each.

Number ESCAPED *in each Household.*—16 houses, 0 case; 14 houses, 1; 13 houses, 2 cases; 3 houses, 3; 2 houses, 4. Total households, 50. Persons attacked, 112. Children escaped, 48. Chances, if present in room, attack, 2⅓—; escape, 1.

Severity.—Malignant, 32 cases, or ¼; mild, 46, or ⅖; diphtheritic throat, 33, or ¼+.

Situation of Membrane.—Began in pharynx, 104 cases, extended to nares, 33, and to larynx, 14; began in nares, 4, extended to pharynx, 4; began in larynx, 4, extended to pharynx, 2.

Duration of Membrane.—Average of all cases 6+ days, maximum, 21, minimum, 2; of malignant (who lived), 11⅔ days, maximum, 21, minimum, 7; of malignant (who died), 7+ days, maximum, 15, minimum, 2; of mild, 6+ days, maximum, 14, minimum, 2; of diphtheritic throat, 4½ days, maximum, 8, minimum, 2.

DEATH-RATE.

Severity.—Malignant, 32 cases, 17 deaths, or ½— (7 cases were seen too late for treatment); mild, 46 cases, 0 death; diphtheritic throat, 33 cases, 0 death; average of all, 112 cases, 17 deaths, or 1 in 7; leaving out the 7 cases seen too late for treatment, 105 cases, 11 deaths, or 1 in 10.

Membrane.—Membrane in pharynx and nares, 108 cases, 7 deaths, or 1 in 15, or $\frac{1}{15}$; extending to larynx, or began in larynx, 18 cases, 12 deaths, or 2 in 3, or ⅔.

Day of Death.—3d, 2 cases; 4th, 1; 5th, 3; 6th, 4; 7th, 1; 8th, 1; 9th, 2; 10th, 1; 12th, 1; 18th, 1. First week, 11; second, 5.

Manner of Death.—Asthenia alone, 1; septicæmia alone, 2; asphyxia (insufficient oxygen), 10; eclampsia, 2; cardiac paralysis, 2.

Age.—Under 1 year, 0 case; 1 year, 4; 2 years, 3; 3 years, 2; 4 years, 1; 5 years, 1; 6 years, 1; 8 years, 4; 11 years, 1. Under 4 years, 10; over 4 years, 7.

Sex.—Males, 6; females, 11. (See sex of cases attacked).

SEQUELÆ.

All.—Average of ALL cases, 11, or 1 in 10; malignant, 9, or 1 in 4; mild, 2, or 1 in 23; diphtheritic throat, 0.

Variety.—Paralysis of pharynx, 10; of larynx, 7; of limbs, 6; of heart, 2; rheumatic pains, 2.

Membrane.—Duration of membrane on cases who had sequels was 12⅓ days.

Sex.—Males, 5; females, 6.

Translations.

The Hereditary Transmission of Syphilis. By Dr. M. KASSOWITZ, Attending Physician to the General Hospital for Children, Vienna. 1876. Translated for the NEW YORK MEDICAL JOURNAL by Milo A. Wilson, M. D., Clinical Assistant to Professor of Dermatology, Bellevue Hospital Medical College, etc.

(*Concluded.*)

IX. *Viability of Syphilitic Children.*—Besides the early interruption of the pregnancy, and partly in connection with it, the degree of viability of the child, as an adequate expression of the intensity of its infection, is also of great importance. It is evident that the severe infection inherited by the fœtus, during the first years of parental transmission, almost entirely extinguishes its viability, that this capability of life again increases in the children procreated in the later stages of the parental disease, and, finally, in the last period of the heredity, it is either not at all injured, or else in a scarcely noteworthy way.

In order, now, to judge of the relative number of those children who succumb entirely to a syphilitic inheritance, we must take into consideration, not alone the number of still-births, but also those children who, indeed, are brought into the world alive, but succumb to the intensity of their inherited affection, either immediately after birth or a short time thereafter. The number of the still-births may be very exactly determined; not so, however, the number of those succumbing to congenital syphilis as such. But, nevertheless, in order to establish an approximate estimate, I have regarded those children affected with hereditary syphilis, who died within the first half year, as yielding to the inherited dyscrasia, and have not looked upon those cases of death *after* the first half year as in any way connected with syphilis. The few errors connected with this view may so partly counterbalance themselves for the reason that, upon the one hand, probably before the end of the first half year, death could be attributed occasionally to an intercurrent malady; but, upon the other hand again, death after this time may still be occasioned by the inherited syphilis, if even only indirectly. Moreover, the greater number of deaths took place within the first weeks and months of life; and, under such circumstances, the connection with syphilis is undoubted.

Accordingly, we divide the 330 children of 119 syphilitic marriages observed by us into 3 categories; namely, into still-births, into those dying within the first half year, and, finally, into such as have lived through the first half year, furnishing us the following data:

	Still-Births.	Those dying in the First Half Year.	Remainder.	Together.
I. Father alone syphilitic......	26	21	58	105
II. Mother alone syphilitic......	18	5	17	40
III. Both parents syphilitic......	28	24	24	76
IV. Conditions of inheritance doubtful................	39	30	40	109
Total.....................	111 (33.6%)	80 (24.3%)	139 (42%)	330

It results then from these figures:

1. That of all children, procreated during the existence of parental syphilis, *exactly one-third are born dead.*

2. That of those born living, 24 per cent. succumb to the inherited dyscrasia during the first half year.

3. That in accordance with this, if we add the still-births and deaths within the first half year together, we obtain the sad result that, of all children who inherit syphilis from their parents at the time of procreation, 58 per cent., consequently *nearly three-fifths, die*, and only two-fifths escape death as a direct result of their disease.

The causes of this remarkably slight viability of syphilitic children are to be found in the following points:

1. In the frequent interruption of pregnancy before its normal termination, which, as we have seen, occurs in one-third of all the births. The capability of life in these premature births is exceedingly small. Of the 31 children born before the 6th month of pregnancy, all were dead; of the 48 at 7 months, 40 were dead at birth, and of the 48 at 8 months, 31 were still-born, consequently, *of all the 127 syphilitic premature births, 102, exactly four-fifths, were still-born.* The fate also of the remaining fifth was soon decided: for 11 died during the course of the first day, 7 in the further course of the first week, 4 still before the end of the first month, and only 3 survived the first month of life.

2. In the severity of the affection in those born living, at full term. The outbreak of the disease in some cases occasions fœtal death still within the uterus, and, altogether, 9 such children were still-born at the normal end of pregnancy; in other cases the fœtus survives the eruption of the disease *intra*

uterum, and is brought into the world with undoubted syphilitic lesions upon the skin, nasal mucous membrane, epiphyseal cartilages, etc. These latter also show almost unexceptionally a very slight degree of viability, and die usually during the first days of life. Nevertheless, I have but recently observed the spontaneous cure of an extensive congenital bullous syphilide in a child born at term:

It was the third child of a mother, found upon examination to be healthy. Both the preceding children were still-born. This child at birth was nearly of normal weight, and 52 centimetres in length. Upon the face, buttocks and extremities, were bullæ in size from that of small peas to beans, which burst for the most part soon after birth. They were situated almost without exception upon an infiltrated portion of the skin, which extended slightly beyond the outer edge of the bulla. Apart from these there were several papules from which the epidermis was not removed. The placenta was entirely normal. After 14 days the efflorescence had entirely disappeared, and the child seemed well. It succumbed, however, when six weeks of age, owing to the unfavorable conditions for its nutrition, because, according to the existing rule, it was removed from its mother, and artificially nourished in the foundling asylum.

Such viability in a child which, even when born, evidences such external syphilitic lesions is, however, extremely rare, and is to be observed almost alone in children of considerable weight.

3. *In the delay in physical development of the child*, occasioned by the inherited disease manifesting itself in the intensely poisoned individual before the outbreak of perceptible symptoms, even within the uterus, and which finds its statistical expression in the *weight*.

Kleinwächter (*l. c.*), for instance, in 46 children of syphilitic mothers in the Prague lying-in asylum, found only 3 above normal weight, and these were all born living. The remainder weighed:

26 (23 living, 3 dead) between 2,920 and 2,800 gramm.
13 (8 " 5 ") " 2,800 " 1,680 "
4 (1 " 3 ") less than 1,680 gramm.

Slawjansky (*l. c.*) even observed once the 7 months' fœtus of a syphilitic mother, which weighed one-half pound Austrian weight (instead of the normal 3 pounds); Baerensprung (*l. c.*) an 8-months' fœtus, weighing 1½ pound (instead of 3½). Fränkel (*l. c.*) saw in 2 almost mature fœtuses a weight of 1,167 and 1,750 gramm., consequently scarcely half the normal weight.

The weight of living or still-born children, seen by me immediately after birth, was also regularly under the normal.

But, even in those syphilitic children born living and viable, the weight of the great majority, even at birth, before the disease comes to light, is less than normal.

In the 44 children, born in the Vienna lying-in asylum, a portion of whom had pronounced syphilis, and the other portion, owing to the syphilis of the mother, were regarded as being in a latent stage of hereditary syphilis, their weights upon their entrance into the foundling asylum were found to be 2 to 3 pounds in 2; 3 to 4 pounds in 13; 4 to 5 pounds in 13; 5 to 6 pounds in 16; all, therefore, less than normal.

Also in those cases which form the chief part of my material for observation, namely, those children seen in the ambulatorium affected with hereditary syphilis, who, of course, were almost all viable, and for the most part several months old, presented very often upon their reception a significant disproportion between the weight found and that which it should be according to their ages; and, indeed, of 87 congenitally syphilitic children who were weighed, 53 were under, and only 34 of and above, the normal weight. Here, however, we must bear in mind that these children were very frequently the last, and still more frequently one of the last members of a series of brothers and sisters, inheriting like them the same disease from the time of procreation, and that they consequently were subjected to a very much modified influence of the virus in regard to their nutrition.

4. Further, where the nutrition is good and there is an apparent freedom from the disease at the time of birth, the viability is, nevertheless, in a high degree compromised, owing to the later *outbreak of the disease* and its consequences, which will be more extensively discussed in the symptomatology.

The danger for the child is, however, always less the longer after birth the outbreak of recognizable symptoms takes place; and, as we shall see that the interval between the birth and the eruption of the exanthematous lesions is, in a certain sense, proportionate to the duration of the parental transmission power, we shall, consequently, find further a proportionate and constant increase of the capability for life in those children to whom syphilis is transmitted at a later stage of the parental disease, therefore in a less intense form.

This explains also, the widely different views of various writers, with different kinds of material for investigation, upon the viability of hereditary syphilitic children. In the *syphilitic wards* in which, for the most part, women are admitted during the first years of the disease, and where, therefore, chronic forms are comparatively rare, the birth of a viable child with hereditary syphilis is of unusual occurrence, as may be seen from the reports of Pick (*l. c.*), Engelstedt (1872), Bergh (1868–'69), and others.

In *foundling asylums*, that in Vienna for instance, into which children are transferred from the lying-in asylum, as a rule, when ten days old, viability is on an average considerably heightened; because here, not only the children of women with recent syphilis, but all children of a certain class of people are represented, consequently also all stages of the syphilitic inheritance, with the exception of the absolutely non-viable, which are either still-born, or die in the lying-in asylum. If here, notwithstanding, the ratio of mortality of congenitally syphilitic children is greatly increased (from 1854–'68, 337 out of 400 children with hereditary syphilis died, consequently 84 per cent.), this is more to be attributed to the well-known and partly unavoidably unfavorable state of affairs in a foundling asylum: and, upon the other hand, to the circumstance that such children, if their mothers are syphilitic, are removed from them at once, and are either suckled by other nurses, or at the outbreak of their disease are artificially nourished, and thus given over to certain death. In fact, we learn also from the reports of the institution (*l. c.*) that the children who recovered, 16 per cent., were almost unexceptionally children who had been nursed by their own healthy mothers.

In the *children's hospitals* and *ambulatoria* again, the surroundings are, of course, much more favorable. On the one side, we have here only children positively viable from birth; on the other, they are in the greatest number of cases suckled by their mothers (according to my notes, of 133 children only 7 were not at the breast); and, finally, we must take into consideration the remarkable influence of a mercurial treatment upon those children congenitally syphilitic. To these factors is to be attributed the surprising result that, in our ambulatorium, the mortality among children treated for hereditary syphilis scarcely exceeds that among non-syphilitic children, and that death, as a direct or probable consequence of the inherited disease, is of the greatest infrequency. On the whole, of 133 children with syphilis hereditaria, 21 died; but 12 only during the first half-year; 4 in the second half-year; the remaining 5, between 1 and 3 years. Further, of such children as died during the first half-year, I can ascribe but 5 cases directly to syphilis; all of the remainder, those dying in the first half-year as well as those dying later, fell ill from intercurrent diseases: inflammation of the lungs, whooping-cough, variola, acute intestinal catarrh (among these, 2 artificially nourished), etc., after the complete cure of the syphilis. But even should we regard all deaths within the first half-year as the direct or indirect consequence of hereditary syphilis, we have still a ratio of mortality of scarcely 8 per cent., a result which forms a striking contrast to the assertion of Zeissl (1873), who holds syphilis hereditaria to be an absolutely fatal disease, and who specially had never seen a child recover from syphilis hereditaria maculosa, or pustulosa. He has based his assertions apparently only upon observations made in syphilitic divisions and lying-in asylums.

As it is of great interest, and of importance not to be undervalued, to know how long a period, as a rule, must elapse from the time of the inoculation of the progenitors until the intensity of the heredity is to such a degree modified that the fœtus may be viable, I have, in all cases under my observation, in which the time of the infection could be ascertained nearly with certainty, calculated the time which had elapsed from the inoculation up to the birth of the first viable child (after others not viable). The result of this calculation was that: in 1 case it was 7 years; in 8 cases, 6 years; in 8 cases, 5 years; in 5 cases, 4 years; in 7 cases, 3 years; and only in 2 cases was it less than 2 years from the inoculation of the progenitors until the birth of the first viable child took place. Consequently, in almost all cases, it is only after 3 years, in more than half, only after 5 years that the first viable child is born. But, in the 2 cases under 2 years, it is certain that the mother (who in both instances was the only parent affected) underwent a very active mercurial treatment.

The very great practical importance of this, which we have already in part discussed, induces us to again state as follows:

That only very exceptionally during the first (3) years of a spontaneously disappearing parental syphilis is it possible for a viable child to be born.

XII. *Time of the Outbreak of the Perceptible Symptoms of Inherited Syphilis.*—Although the consideration of the first outbreak of visible symptoms belongs under the head of the symptomatology of inherited syphilis, and must there find a thorough treatment worthy its importance, yet the subject cannot be here entirely thrown aside; for the reason, that the varying duration of the latency of the symptoms in the child is an evidence of the varying intensity of the inheritance, in so far that the eruption follows so much earlier, the more intense the poisoning of the fœtus, and the nearer the procreation takes place to the time of the inoculation of the progenitors.

This highly interesting fact can be undoubtedly proven upon the one side, by those cases in which the eruptive period in several consecutive children of the same series could be observed; partly also from a statistical comparison of a great number of viable syphilitic children, and the time of the outbreak of their manifestly syphilitic symptoms.

It must be stated in advance here, that the prodromic symptoms—decreasing nutrition, pallor, restlessness, even coryza—were disregarded, and attention only given to the time of the first outbreak of the exanthema; because this only furnishes an exactly defined and characteristic period of time, somewhat like the eruption of an acute exanthema; while the other symptoms make their appearance more gradually, and without a sharply characterized beginning.

According to our experience then, the eruption of the first general exanthema takes place exclusively within the first three months. This is a purely clinical fact, but eruptions several weeks, or even months, *after* this termination are, *a priori*, not to be excluded; for, as there can be no question as to a period of incubation in acquired syphilis, and as the deeper causes of the different durations of the latency in hereditary syphilis remain still completely in darkness, so also, just as the syphilitic lesions manifest themselves already within the uterus, and as they may remain latent one, two, and three months, a latency of a somewhat longer duration would certainly not be very remarkable. Therefore, in view of the want of every theoretical foundation explanatory of the duration of the latency, the naked facts are alone to be considered; and, in accordance with them, the outbreak of the first symptoms is, at all events, extraordinarily rare *after* the lapse of the third month. In my 124 cases which I observed, either immediately at the time of the first eruption or shortly thereafter, there was not one in which the beginning of the eruption took place after the third month; and the opinions of most writers, who all, indeed, regard the disease as appearing in the by far larger number before the beginning of the fourth month, but still grant that there are always isolated cases, in which the eruption may be postponed until the later months, or even indeed to the end of the first year, seem to be not sufficiently reliable; for the reason that, in cases of the latter kind, no single observer attempts to exclude the possibility of a probable exanthema preceding the eruption observed by them, and occurring within the first three months of life. Only very recently, Caspary (*l. c.*) published two cases, in which he himself observed the eruption in the fourth and fourth and a half months, and believes himself able to exclude a previous eruption. Both cases were the last members in a succession of syphilitic births. Such observations only prove that a retardation is exceedingly infrequent, but do not alter the rule, that *the outbreak of the first exanthema takes place almost exclusively during the course of the first three months.*

The 124 cases in which the period of the eruption was observed, or could be positively affirmed by me, divide themselves as follows:

Eruption in the 1st week	11	53 per cent.
" " 2d "	21	
" " 3d and 4th weeks	34	
" " 2d month	40	32 "
" " 3d "	18	15 "

In order to ascertain with some definiteness in what relation the period of the eruption stood to the stage of the parental transmission power, I have learned from my table in each one of these cases the position of the child in question in the series of preceding children, and I did so by noting which, in the succession of *living* and viable syphilitic births, the child in question was. As a result, 52 cases at least were discarded, in which the child observed was generally the first-born, in which, consequently, nothing was to be decided as to the relation of the same to the other brothers and sisters; but the remaining 72 furnished the more interesting relations.

Of 10 children in whom the exanthema appeared during the course of the *first week*, 8 were the first living children after previous premature births; 1 was the second, and 1 the third living child.

Of 13 children with eruptions in the *second week*, 5 were the first and 5 the second living children; 2 were the third, and 1 was the fifth living child.

Of 24 children in whom the eruption began in the *second half of the first month*, only 7, consequently scarcely one-third, were the first living syphilitic children; 13 had been preceded by a living child; 3 of them were the third and 1 the fourth living child.

Of 27 children in whom the exanthema appeared first during the course of the *second month*, only 8 were the first living children after previous abortions; 10 were the second, 5 the third, 3 the fourth living children; 1 even was the sixth in the succession of syphilitic children.

Finally, of 12 children who fell ill for the first time in the course of the *third month*, only 2 were the first living children (but in one case 7 years, and in the other case 5 years, had elapsed since the last still-birth), 6 the second, and 4 the third living children after preceding abortions.

It results from this that the early outbreaks of the exanthema happen almost exclusively, or, at least, exceedingly often, in those children who are the first capable of life following previous still-births, and in whom the intensity of the inheritance may be regarded as still very great; while the late eruption is only observed in such children as have been preceded, since the last still-birth, either by the births of living children, or a great number of years have elapsed where, consequently, the parental transmission power must have already reached its last stages.

Reversely, we can also say that the nearer the birth of the child is to the time of the premature and still-births, so much earlier, as a rule, must follow the eruption of the exanthema, as can be seen from the following table, which is a synopsis of the figures given above:

	Eruption in the first week.	Eruption in the second week.	Eruption in the third and fourth weeks.	Eruption in the second month.	Eruption in the third month.
First living child...	8	5	7	8	2
Second " " ...	1	5	13	10	6
Third " " ...	1	2	3	5	4
Fourth " " ...	..	..	1	3	..
Fifth " " ...	..	1	..	..	..
Sixth " " ...	..	..	..	1	..

The steady increase in the length of time before the eruption in the births of the same series following consecutively is readily perceptible from the cases (VI., IX., XIX., XXI., XXII., XXIV., and XXV.) already given. Sometimes, indeed, an equal duration of latency in two consecutive births (Case IV.) is observed, but only extremely seldom a period of latency at all shorter in a later birth than in the one preceding it.

The eruption of the exanthema in the third month signifies quite positively in itself a greatly lessened intensity of the heredity, which is also evident from other symptoms. The children (18 in number) in whom the exanthema made its appearance in the third month were almost always well nourished—many even quite unusually so—and weighed in many cases beyond the average. The form of the exanthema was almost exclusively the macular and the papular; vesicular syphilides (pemphigus) was never present, and seldom, if ever, a diffuse syphilitic infiltration of the skin; which two latter are always indicative of more intense disease. Further, the otherwise so frequent specific affection of the epiphyseal cartilages I have observed but once in such a child. The eruption runs a mild course, and is curable in a short time; the relapses are less frequent, nutrition is but seldom compromised by the disease, and the development of the specific syphilitic habitus, which characterizes in so pronounced a manner those children intensely affected, is never observed.

Such a very slightly affected child is followed in most cases by an entirely healthy one; and we may, therefore, say *that the outbreak of the exanthema in the third month of life may be looked upon as a sign of the disappearing syphilitic transmission power in the progenitors.*

XIII. *Relation of the Syphilitic Inheritance to other Constitutional Diseases of the Child.*—In the conclusion of this work, and in connection with the last-mentioned results of the disappearing transmission power in the parents, together with the final birth of healthy children after the extinction of this power, there is still to take into consideration the greatly-discussed question: *whether parental syphilis can be transmitted to the child under a different form from the usual appearances of hereditary syphilis.*

Such a connection between the syphilis of the parents and the scrofula, phthisis, and rachitis of the children (it is chiefly only in regard to these diseases) can, however, only be considered in two ways: *either* the disease is found oftener in children who are suffering or have suffered with syphilis hereditaria than in others, and is to a certain extent a sequel of hereditary syphilis; *or*, the children of syphilitic parent to whom the disease for some reason is not transmitted—whether through suppression of the transmission power by mercurial treatment, or through the spontaneous extinctio of the procreative syphilis, or, what is the same, through transition of the parental syphilis into the tertiary stage—become ill in consequence of the dyscrasia of the parents, very often, or always, from one or more of the constitutional diseases spoken of; and therefore the syphilis of the parents is no longer transmitted to the children as syphilis, but as scrofula, phthisis, or rachitis.

Inasmuch as I at once without hesitation declare that I hold as possible a favoring of these constitutional anomalies by an existing or a past congenital syphilis, but that I regard an inheritance of parental syphilis, in the form of one of the diseases mentioned, or of any other disease, without signs of hereditary syphilis, as entirely unproven, and its acceptance unjustifiable, I will proceed to the discussion of these several diseases.

Scrofula is mentioned most frequently as a consequence of parental syphilis. Such a metamorphosis of syphilis in the next generation was already accepted in the beginning of the present century by Mahon, Bertin, Hufeland, and others. Ricord conceded this transmutation and stated, in his "Letters upon Syphilis:" The progeny of tertiary syphilitics are not syphilitic, but scrofulous and rachitic. Maisonneuve and Montanier (*l. c.*) even described a peculiar form of scrofula, the scrofuloid, which appeared only in the children of syphilitics, and to be certainly differentiated from scrofula. Rosen (*l. c.*) also believes in a similar form of heredity.

The result of my observations in this direction is to the effect that, in children who have survived inherited syphilis, there appear occasionally enlargements and cheesy metamorphoses of the glands, just as in non-syphilitic children, possibly even oftener than in the latter, in which cases it must then be partly attributed to the general mal-nutrition resulting from the past severe disease, partly to the glandular enlargement arising purely from the syphilis, which may be the exciting cause of the later degeneration. But just here it must be observed that in syphilis hereditaria the lymphatic glands are by far less frequently affected than in the acquired disease.

Further, in individuals who have outlived hereditary syphilis, it is well known that, sooner or later, even at a mature age, very obstinate forms of tertiary syphilis still manifest themselves; which may readily lead to a confounding of the same with scrofulous affections of the bones and mucous membranes, lupus vulgaris, etc., and which will be extensively and thoroughly discussed in the chapter upon late forms of hereditary syphilis. Such tertiary forms, however, only present themselves in persons who in youth have suffered in a more or less pronounced and severe manner from the usual forms of hereditary syphilis; they are, then, parts of the inherited affection. But those children to whom the syphilis of the parents for some reason is not transmitted, who consequently have not given evidences of inherited syphilis within the first months of life, may, according to my experience, remain entirely healthy; and in fact, in ten children observed by me, who were procreated after the extinction of the parental transmission power and who remain free from syphilis, I have thus far been unable to notice any scrofula, although several have already reached the age of four and five years, and have always been under observation. They are almost all stout and healthy, although the parents of several suffer from undoubted forms of tertiary syphilis; and there is no evidence that they carry within them the germ of scrofula. But, even if such children should become ill with scrofula, I would have no foundation for regarding the same as a metamorphosed syphilis; because it is unconceivable why children whose parents have at one time had syphilis could not suffer from scrofula as well as others. Even if we acknowledge that the change in the parental constitution occasioned by the past syphilis could favor the origin of scrofula in the children, it would prove by no means that syphilis in the parents could be transmitted to the children as scrofula.

The condition in relation to *phthisis* is very nearly the same as in scrofula. Its relation to syphilis is no other than that it attacks an organism weakened by syphilis, much more easily than a strong one. It is, however, entirely unwarrantable to trace the phthisical process direct from syphilis, as is done, for instance, by Rosen. When, in one of his cases (*l. c.*, Case XL.), a syphilitic father who dies later, from phthisis, procreates a daughter who in childhood is affected with syphilis hereditaria and dies from phthisis at the age of fifteen, we only have here the direct inheritance of phthisis, just as the syphilis.

Rachitis, also, is never to be regarded as a direct result of parental syphilis. Yet I must grant here, in contradistinction to the two constitutional anomalies just mentioned, that rachitis not only occurs in congenitally syphilitic children, just as in others, but that in fact it appears in the former disproportionately oftener, and on an average also earlier and more violently, than in non-syphilitic children. In almost all the children with congenital syphilis, which I had the opportunity of observing during a long period, very pronounced rachitis developed itself, evidenced especially in a striking manner upon the cranium, but also as regards the teeth (tardy development and premature decay), the extremities, the thorax, etc. I can even go so far as to declare that the absence of rachitis in hereditarily syphilitic children in my cases was a rarity, and that I know at the most of but three or four children, previously syphilitic, in whom it did not appear. Although I withhold the closer details for the chapter on diseases of the bones, I must nevertheless mention here that I am inclined to associate the so frequent occurrence of rachitis with the syphilitic process, in so far as that, as we shall see, hereditary syphilis, in a great number of cases, occasions an entirely specific affection, just in that portion of the epiphyseal cartilages in which the growth in length of the long bones commences. Although I am far from identifying this process with the rachitic, nevertheless, from my numerous examinations of syphilitic, rachitic, and healthy bones in the fœtus and new-born children, I have arrived at the conclusion that both processes *in their first stages* are anatomically and microscopically not to be differentiated; and that they diverge only in the later and severer stages, in which syphilis specially leads to a destructive process which has no analogy in rachitis. But the great similarity of the objective conditions found in the first stages would naturally lead us to suppose that here, possibly, two kinds of causes produce the same effect, at least in the first stages of the developing disease processes. As we now know that syphilis is sufficient to bring about, especially in those tissues in which the rachitic disease has its seat, a process which at least has a very great resemblance to the rachitic, proliferation of the cartilage cells, inflammatory changes in the perichondrium and periosteum, with growth of osteophytes in both the latter, etc.), we can scarcely throw aside entirely the supposition that this specific process in these tissues may be, at the same time, the exciting cause of the development of the actual rachitic process. This would correspond also very well with the remarkable actual frequency of rachitis in hereditarily syphilitic individuals.

But, even if such a connection should exist, rachitis here also, in many cases, would be merely a sequel of hereditary syphilis, but in no way a disease by inheritance of a to a certain extent metamorphosed syphilis of the progenitors. In fact, there is no foundation whatever to support the view that in children of syphilitic parents who have not the disease through any of the causes already given, who consequently do not suffer or have not suffered from the usual symptoms of hereditary syphilis, rachitis develops oftener, or in any other manner, than in the children of non-syphilitic parents. In my ten cases of healthy children, born of syphilitic or formerly syphilitic parents, I have not once been able incidentally to prove a noteworthy degree of rachitis.

The remaining views belonging here as to other diseases, which appear earlier or later in the children, directly as a consequence of parental syphilis, without, however, the true inheritance of syphilis as such, for instance nervousness, sleeplessness, hydrocephalus, chorea, teleangiectasis (Baerensprung), etc., I only mention on account of completeness and their singularity. They do not require special consideration.

Accordingly, the summa of this discussion is *that the transmission of syphilis from the parents to the child, through the agency of the semen or ovum, always brings about the highly characteristic and unmistakable appearances of inherited syphilis, and this alone is occasioned by it.*

The searching and accurate description of these appearances is the object which I next have in view.

Clinical Lecture.

Bright's Disease, Emphysema, and Phthisis.[1] *Delivered at Bellevue Hospital.* By Professor AUSTIN FLINT, Sr.

Bright's Disease, with Slight Uræmia.—GENTLEMEN: I had expected to present to you this morning two cases which, while both exhibiting the phenomena characteristic of general dropsy, would offer a marked contrast as regards the causation of the trouble; but in this I have been disappointed. I shall therefore content myself with speaking of the dropsy noted in the present instance, leaving the presentation of the contrast between the different forms of dropsies to another occasion. Now, what are the prominent symptoms of this case? In the first place, you observe that the patient is markedly anæmic, and that there is also some puffiness under the eyes, though this has diminished considerably since she came into the hospital. The same is true of the general dropsy from which she is suffering. You will furthermore observe that there is not the slightest lividity of the face, and no dyspnœa whatever. The points that I would have you particularly note in cases such as this are: the simple pallor, the absence of lividity, and the entire absence of all interference with respiration.

I will now read the history of the case, and, in doing so, call your attention to the diagnostic points in it, especially those in regard to uræmia. The patient's name is Mary D., 21 years of age, and she was admitted to the house December 11th (nine days ago). There is a negative family history. She is a domestic by occupation, and was quite healthy up to one year ago. She has never had rheumatism. A year ago she came into the hospital suffering from cardialgia, anæmia, and slight dropsy, and in six weeks was discharged well. After that she remained in good health, with the exception of slight attacks of cardialgia, until five weeks before admission, when œdema of the feet came on suddenly. At the same time she began to suffer from headache, dimness of vision, and pain in the back, and noticed that her urine was dark in color. When she came into the hospital she complained of the most intense headache, the face was œdematous to some extent, and the feet and legs very markedly so. The apex beat of the heart was normal in character and position, but there was a systolic murmur heard at the apex, which was not, however, transmitted to the left of the heart-area, or, at least, not to any extent. There was also a systolic murmur heard at the base, heard also over the carotid artery, and was probable anæmic in character. The urine was of a specific gravity of 1026, and contained a small amount of albumen, together with some large hyaline casts. She passed fifteen ounces of urine during the first twenty-four hours, which, you will observe, is twenty ounces below the normal average. Notwithstanding the high specific gravity, the diminished quantity of water shows a limited amount of urea.

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[1] Reported for the NEW YORK MEDICAL JOURNAL.

The patient was put upon half-ounce doses of infusion of digitalis every four hours, and morphia was given for the relief of the headache. In connection with this case, I would have you note particularly the three minor symptoms of uræmia, which were all well marked here, viz.: headache, nausea, and dimness of vision.

On the day following her admission (December 12th), the patient was cupped over the region of the kidneys; and on the 14th, her condition remaining much the same, she was given an ounce of jaborandi every three hours. Nausea and ptyalism ensued, and at 6 P. M. she became very cold. Hot whiskey-punch was then ordered, with hot-water bottles to the feet, after which she reacted nicely, and had a profuse perspiration. The jaborandi was now given, in double doses, by the rectum, and *pulvis purgans* to operate upon the bowels.

On the 15th she was considerably improved, and passed sixteen ounces of urine. On the 16th the improvement was still more marked. On this day she was given two drops of croton oil, the drops being taken one at a time, with an interval of two hours between them. On the 17th there was but little headache, and no nausea remaining. On the 18th she passed twenty-six ounces of urine. Digitalis was now the only remedy that was continued. On December 19th she had no pain at all in the back, and passed twenty ounces of urine.

Feeling that we can safely exclude waxy kidney here, and noting that the symptoms do not correspond with what is known as the granular contracted kidney, I think we are justified in forming the opinion that in this case there is present the large white kidney.

Probable Aneurism of the Arch of the Aorta.—The patient, a man forty-three years of age, has suffered more or less for the last 14 months from dyspnœa, the trouble being sometimes quite urgent, and sometimes very slight. He has also had cough, and at times a very considerable amount of expectoration. When I asked him if the dyspnœa was not increased when he lay down at night (no physical exploration having as yet been made), I was surprised to hear him reply that he obtained a certain amount of relief upon lying down, and was still further surprised when he told me that he suffered the least from the dyspnœa when he lay with his face downward. The patient now being stripped, let us take a look at his chest. You observe that on inspection nothing striking or abnormal is seen: simply a capacious and symmetrical thorax. Now, on percussion, you notice there is resonance on both sides; and when we make an examination of the heart it is found to be normal in size and position, and without any murmur. Yet, on auscultation, we get a feeble respiration everywhere. There are, however, no vocal signs to guide us, and the diminished vesicular murmur is all that we are able to find that is abnormal about the lungs. What, then, is the disease from which the man is suffering? Is anybody prepared to offer a diagnosis? (A student: "Emphysema.") Yes, emphysema would naturally suggest itself to the mind; but I think I can demonstrate to you in a very short time, and very evidently, that this cannot be the trouble here. The patient having now walked briskly up and down the amphitheatre several times, if there were emphysema present, we should undoubtedly find very labored respiration: but, you will observe, the character of his breathing is not at all altered, or only to a very limited extent.

So, then, I think we shall have to exclude emphysema. When the patient speaks you notice that his voice is unchanged, which shows at once there is no trouble with the larynx; but, when I apply the stethoscope to the trachea, I find the respiration is very noisy there; while, when his breathing is excited, I get distinct stridor from the larynx. The conclusion therefore is that the patient is suffering from some form of tracheal obstruction. Consequently, the dyspnœa is not of an asthmatic character; and so we are not to call this a remarkable exception to the general rule in asthma, in which the difficulty in breathing is always increased by the recumbent posture. If the case were of an asthmatic character, it would be a still more remarkable one on account of the fact of the patient's obtaining the most relief when lying upon the face; but I have yet to meet with such a case in practice. The question next arises: What is the cause of the obstruction of the trachea? Well, the first thing that occurs to me is aneurism; and, as the man is forty-three years of age, we have a right to look for that affection. There are, however, no positive signs of the presence of aneurism. There is no difference between the radial pulse in the two arms, and there is no difference in the respiration on the two sides of the chest.

If this condition be indeed present, we are therefore forced to conclude that it is so situated as not to interfere with one of the primary bronchi. The most reasonable supposition is, then, that the aneurismal tumor is located in the transverse portion of the arch of the aorta, and also on its posterior part. It must be situated posteriorly, because when this is the case it is unaccompanied by pain (as in the present instance), unless the spinal column is pressed upon. This, as it seems to me, is the probable diagnosis in this case; but you will see that it is arrived at by a process of exclusion rather than derived from positive evidence, since there is no impulse or any other of the ordinary signs of aneurism here. There are, of course, other sources of obstruction of the trachea; but I am unable to find any of them there. Not long since, however, I saw in consultation a young man, in whom the symptoms of which he complained seemed to be attributable to aneurism, and were fully accounted for on this supposition. He had had syphilis, and there seemed to be every reason why we should suspect the presence of this condition; but it finally turned out that all his trouble was caused by an enlarged bronchial gland.

But, as I said in the present instance, I think we are justified in saying that we have an aneurism of the posterior part of the arch of the aorta. One corroborative proof of this is the fact that we can thus find an explanation for the circumstance that the dyspnœa is relieved to the greatest extent when the patient is lying with the face down; and I do not know of any other condition that would satisfactorily account for this. The explanation is that, when the man is in this position, the weight of the tumor carries it forward, and the trachea is thus in a great measure relieved of the pressure which is, at other times, made upon it by the aneurism.[1]

Physical Diagnosis of Emphysema and Phthisis.—I wish to present to you to-day two cases which I think will prove of great interest to all who care at all for the subject of physical diagnosis. In the first place, I will not pause to go into the history of these two men. We sometimes meet with patients who present themselves in order to get an opinion of their cases, but who refuse to give any history at all, and wish the diagnosis made out exclusively from the physical signs present. Though, as a general rule, an opinion in any given case should be made from its complete past history, as well as the results of physical exploration, such persons as I have just spoken of are perhaps right, to a certain extent, in refusing to state any of the circumstances of the case; for we all know how apt the practitioner is to form an opinion from the history, and then; being prejudiced in favor of that opinion, endeavor to make all the physical signs have a bearing in support of his preconceived idea. The patient now being stripped, you observe that in the first one there does not seem to be any difficulty of respiration, while in the second it is somewhat labored. Next, I want you to notice carefully the percussion-sounds in the case of the first patient, and I will endeavor to bring them out so fully that they can be heard in all parts of the room, if perfect quiet be observed. In determining the diagnosis of phthisis, for instance, we always begin our examination in the upper part of the chest (the infra-clavicular spaces), where the disease usually shows itself first; always, however, making due allowance for the normal differences between the two sides of the chest. On the left side the percussion-resonance is naturally a little more intense than on the right. We should also always be very careful to have the patient in such a position that the chest will be symmetrical. You will be surprised, if your attention has never been called to the matter, to find what a difference there is between the two sides of the normal chest if the individual stands with one shoulder higher than the other while percussion is being made.

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[1] The positive signs of aneurism in this case were subsequently developed.

Now, having practised percussion in this case, I wish to ask the class whether they have detected any difference between the two sides of the chest. All who think there is a difference will please hold up their right hands. (Nearly all the students present held up their hands.) Well, you all seem pretty well agreed that there is a difference; and I wish to inquire next whether you think there is dullness on one side. All who think there is will please indicate it in the same way. (About half the class held up their hands.) All who think there is no dullness will please indicate it. (The rest of the students then held up their hands.) You see, gentlemen, that we have here a nice point in physical exploration, and there seems to be a decided difference of opinion in regard to it. It is quite true that there is less resonance on percussion upon the right side than upon the left, but there is really no dullness there. The same is true on the lower lobes of the lungs, though to a less marked degree. The explanation of the phenomena observed is that in emphysema, which is the condition here present, the upper lobes are more affected than the lower ones, and the left lung more than the right. This is the general rule, though there are sometimes exceptions to it. There being emphysema present, we get over the upper lobes on both sides a vesiculo-tympanitic resonance on percussion. According to the rule, we should get more of it on the left side than on the right, and this, as we have seen, is actually the case. The sound is higher in pitch, as well as more intense, on the left side than on the right. In addition, we find the other physical evidences of emphysema here—such as a very feeble respiratory murmur on both sides—but more marked on one side than on the other, together with normal vocal resonance and fremitus, and normal bronchial whisper.

Now, let us practice percussion upon the chest of the second patient. Here, you observe, the contrast between the two sides is even more marked than in the other case. While on the left side there is normal resonance, there is very decided dullness on the right side, where phthisis is now fully developed. I want to make a few remarks upon these two cases. Such a one as that of the first patient is frequently sent out as a case of phthisis, the diagnosis being based upon the history of cough and expectoration, and an improper appreciation of the physical signs observed. An opinion having thus once been conceived, the mind of the physician becomes prejudiced in regard to all the subsequent phenomena of the case. But if you will carefully compare differences of resonance, as regards pitch and quality, you will always be able to avoid making such an error as that. Unless you do this, you might easily mistake the first case for one of incipient phthisis. In the second case phthisis has far advanced, as is shown by the marked retraction under the clavicle; and there is already a cavity in the lung, there being at one point amphoric resonance and pectoriloquy. Such a case of fully-developed phthisis no one would have any difficulty in recognizing; but in the incipient stages mistakes are constantly made, and in order to avoid them it is essential that the practitioner should have an accurate knowledge of the *normal* differences between the two sides of the chest. To these, therefore, I desire now to briefly call your attention.

In the first place, resonance is a little more intense on the left side than on the right.

Second. Vocal resonance is decidedly greater on the right side than on the left. In making such explorations we should always select points on the two sides which are equidistant from the median line.

Third. Bronchial whisper is more intense on the right side than on the left. It is also a little lower in pitch on the right side. These points you will often find of great assistance in diagnosis.

Fourth. The inspiratory sound is a little louder on the left side than on the right. It is also more vesicular in quality and lower in pitch on the left side. Expiration is frequently prolonged in healthy individuals upon the right side. It is raised in pitch, and sometimes tubular in character in children and females. These differences in the normal respiratory murmur are somewhat more difficult of appreciation, and require a little more attention than the other points to which I have alluded, but I assure you it will amply repay you to study them carefully. In practising auscultation you should always remember the anatomical differences in the infra-clavicular spaces of the two sides, due to the different position of the bronchi, etc. Finally, let me impress upon you the very great importance of making a sufficiently large number of explorations of the chest in the healthy individual to enable you to become perfectly familiar with all these peculiarities to which I have called your attention, so that you may be able at once to recognize any departure from the normal standard.

Clinical Records from Private and Hospital Practice.

I.—*A Case of Transposition of the Viscera.* By Andrew H. Smith, M. D., New York.

Miss W., aged thirty, was admitted into St. Luke's Hospital, during my service, in July, 1877, for ovarian neuralgia. A few days afterward the house physician, Dr. Davis, observed a pulsation visible to the right of the sternum, and auscultation showed that the heart was located in that situation. At my visit he called my attention to this, and added that there was nothing in the previous history of the patient or in her present condition to account for the heart being thus moved out of its place. On examination I found the thoracic organs in a perfectly healthy condition; simply the physical signs, which indicate the locality of the heart, were absent on the left side, and present on the right. Continuing the examination, I found tympanitic resonance in the right hypochondrium and marked dullness in the corresponding situation on the left. Vocal resonance and vocal fremitus were more marked on the left side than on the right, and the expiratory sound at the apex was more distinct and prolonged. Auscultation of the interscapular region showed that the sounds produced by swallowing were heard more distinctly on the right of the spine than on the left.

From the totality of these signs, it is fair to assume that there was transposition of the heart, stomach and œsophagus, liver, and lungs.

The position of the spleen was not satisfactorily determined.

The patient was not left-handed.

Miss W. called at my office a few days ago, and I had an opportunity to verify again the observations made repeatedly in July.

This case is of interest in connection with two or three others of like character which have been reported during the past few months; and the more so, as the transposition was recognized during life.

II.—*On a Case of Impacted Extra-Capsular Fracture of Femur in a Patient Aged Seventy-seven.* By Oscar J. Coskery, Professor of Surgery in the College of Physicians and Surgeons, Baltimore.

Margaret E., a German, widow, aged seventy-seven years, was admitted into St. Joseph's Hospital, July 31, 1876, with the following history: One week before, while walking on a level floor, slipped on a piece of tomato-peel and fell upon right side. There has been very slight swelling or ecchymosis, but she has not been able to stand or to use her right limb in any way since, on account of pain in that hip. On admission there was no swelling, no ecchymosis, no pain except upon movement, crepitus could be felt indistinctly, the foot lay upon its outer side, and there was shortening of one inch.

Diagnosis.—Intra-capsular fracture of the neck of the femur.

The patient was one of those "thin, wiry folk" of Paget, who always bear confinement to bed well, and it was decided to attempt to get osseous union. The limb was put up in plaster-of-Paris, and the patient was kept in bed two months. She then got upon crutches, the plaster was taken off, and shortening to the extent of 1¼ inch found. In course of about six months she was walking well, and continued to do so until taken down with last illness—apoplexy—of which she died, April 9, 1878, at 6 P. M.

On a *post-mortem* examination of the fractured bone, it was found that the neck had been broken across, *outside* of the insertion of the capsule, and, partly splitting off the great trochanter, had been firmly impacted into the cancellous structure of the upper portion of the femur. The line of fracture of the trochanter extended from just in front of the insertion of the glutæus-medius muscle, downward and backward, through the insertion of the quadratus femoris into the lesser trochanter, and along this line a considerable callus had formed. The broken neck had become firmly consolidated with the femur.

If the history of this case is compared with the table of differential diagnostic points between intra and extra-capsular fracture, as laid down by Mr. Erichsen, on page 372, vol. i., of his work on surgery, I think any one may see the reason of the original diagnosis having been made. I certainly should not expect a person seventy-seven years of age to suffer from *impacted* fracture, and especially in this case, in which the small fragment originally split off from the great trochanter was connected with two such strong muscles, which, one would think, would be sufficient to complete the separation.

In connection with the subject of fractures of the upper portion of the femur, I would beg leave to call attention to a probable cause, in my mind, of the occasional *inversion* of the foot. I believe that the position of the foot will depend upon the direction of the semi-rotation impressed upon the knee-joint by the patient himself; in other words, the majority of persons turn out the toes in walking. This is accomplished by a small amount of external rotation of the head of the tibia upon the condyles of the femur. In pigeon-toed people, of course, the reverse movement takes place. May not the inversion or eversion of the foot then depend upon the weight of the anterior two-thirds of the foot, added to what has become a normal position of carrying that member. In the only case of inversion of the foot I have seen, the patient was a woman. In this case it was not discovered whether she was pigeon-toed, but women are proverbially so. In the majority of cases of inversion recorded, accessible to me now, I find that they occurred in women.

III.—*Version by External Manipulation; Head brought into Proper Relation with the Brim of the Pelvis by resorting to the Knee-elbow Position.* By Andrew H. Smith, M. D.

Mrs. B., confined with her fourth child November 9, 1877. She had had frequent but slight pains for six hours before I saw her. Found the os uteri fully dilated, and the membranes intact and protruding. No portion of the fœtus was within reach of the finger. External palpation showed that the child was lying transversely, with the head to the left of the mother. Pains frequent but feeble.

The ease with which the fœtus could be grasped from without, owing to unusual thinness and laxity of the abdominal walls, determined me to attempt external version in preference to introducing the hand into the uterus. With very little difficulty the axis of the child was turned to correspond with the median line of the mother; but, when this was accomplished, the head projected prominently above the symphysis pubis, and resisted all efforts to push it backward into the axis of the superior strait. At the same time the right hand of the child prolapsed. By such a digital examination as was practicable without rupturing the membranes, I could reach nothing but the fingers of this hand and a small segment of what was doubtless the forehead of the child, presenting just above the symphysis. Apparently the head was strongly retracted, the vertex caught above the pubes, and the front of the thorax resting against the vertebral column of the mother.

In this position of affairs, it seemed as if the introduction of the hand into the uterus could not be avoided; but, before doing this, it occurred to me that, by placing the patient in the knee-elbow position, the laxity of the abdominal walls would permit the fundus of the uterus to face forward so that the force of the uterine contractions would be exerted in a direction more or less backward, and thus tend to bring the vertex into the proper relation with the pelvic brim. The experiment was tried, and the first pain produced exactly the desired effect. The head left its position above the symphysis, and slipped backward until it coincided with the superior strait. The hand receded and gave no further trouble. At the next pain I ruptured the membranes, and then replaced the patient upon her back.

There was now a normal vertex presentation; and, if the uterus had contracted with proper force, the delivery would have been accomplished without further interference. But the pains possessed only sufficient energy to wear out the strength of the patient without advancing the head, and, after several hours, finding that no progress was being made, I applied the forceps and delivered, without difficulty, a large, living child. Both mother and child did well.

Clinical Reports of the Demilt Dispensary.

CLASS IN NERVOUS DISEASES.

By Dr. N. B. Emerson.

Of the cases of nervous disease that present themselves in my division of this department, I have chosen, as the subject of a few notes in this paper, the class of trigeminal neuralgias, as among the most numerous. Among the causes most commonly observed or inferred, as productive of this affection, I shall mention, with special reference rather to treatment than to pathology:

1. Anæmia, malnutrition, and devitalization from excessive drain, overwork, etc.
2. Malarial poisoning.
3. Syphilis.
4. Cold.
5. Reflex causation, such as pregnancy, etc.
6. Peripheral irritation from lesion or material injury, such as inflammation, ulceration, necrosis, etc.
7. Central lesion.
8. That profound functional disturbance of the fifth pair, by whatever cause produced, which shows itself in tic douleureux.

The above classification makes no pretensions to scientific completeness, but I find it useful for my purpose. It is difficult, even impossible, to make a classification in which every possible case shall find its own place. Of cases that are assigned to the first class, it is impossible to say how many are, in great measure, due to heredity or an original neurotic disposition. This probably exists as a factor in the causation of a majority of all pure neuralgias of this nerve. To determine the facts as to inherited predisposition in dispensary patients is, however, as a rule, not an easy matter. In most of my cases it has not been done.

The following case seemed to be dependent upon anæmia and the drain attendant upon lactation.

CASE I.—M. A. H., female, native of Ireland, aged twenty-three years. Has infant aged seven months which she suckles. Patient thin and anæmic. For a number of days has suffered from pain, attended with violent exacerbations, in all the branches of the fifth nerve on one side. Treatment, emulsion of cod-liver oil, and Thompson's solution of phosphorus,[1] in drachm doses, three times a day; at the same time the woman was instructed to withhold the breast from the child in part, and make up the full amount of nourishment by substituting artificial feeding. The result was entire recovery.

It would be possible to greatly multiply the citation of cases belonging to this class. Probably nine-tenths of them are treated with phosphorus in the form of Thompson's solution, often with the addition of cod-liver oil or iron. Many of these cases are seen but once, and, from the fact of their not returning, it is fair to presume are relieved. Of those that do return, or are heard from afterward, few fail to report relief.

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[1] Each drachm of Thompson's solution contains $\frac{1}{16}$ gr. of pure phosphorus.

2. *Malarial poisoning* is not an infrequent cause of severe trigeminal neuralgia, especially of the ophthalmic branch. In these cases the patient may or may not give a history of attacks of intermittent fever; but it will be found that he has dwelt in an aguish region. The pain often presents a periodic type, but the non-existence of this should not be allowed to weigh overmuch against the diagnosis of such causation. As examples I will cite two cases.

Case II.—E. O., male, aged thirty-four years, journalist, presented himself, October, 1877, with violent pain in the first and second divisions of the fifth, accompanied with spasm of facial muscles inserted in the angle of the mouth on the same side, from which he had suffered for several weeks. While in the West he had an intermittent fever which was cured by the use of quinine. Following this the neuralgia appeared, not presenting a strictly periodic type. Against it large doses of quinine were used in vain. The pain and spasm were sure to come on whenever he attempted to masticate solid food, and even the effort of conversation produced it. While talking with me the man was repeatedly seized with the pain and spasm, for the relief of which he would press his hand against the cheek. No peripheral cause was found to account for the neuralgia. Thompson's solution of phosphorus, in drachm doses frequently repeated, caused but partial relief. Full doses of morphine given hypodermically, and opium or morphine combined with capsicum, caused only temporary cessation of the violent pain and spasm. Loss of sleep and insufficient nourishment were telling upon him rapidly. The man's condition was pitiful. I then ordered powders, each containing ten grains of quinine, one-third grain of morphine, and two or three grains of capsicum. The combination so well succeeded (as I afterward learned) in entirely relieving the pain and spasm that the man, who had previously been a very attentive patient, never again reported in person.

CASE III.—M. O., aged twenty-five years, wife of the above, called a few weeks later and reported that my last prescription had entirely cured her husband. Since taking the powder, neither the pain nor the spasm had again reappeared. She came to seek relief from a similar pain of intermittent appearance, which had first attacked her two years before, but had been specially troublesome for several weeks. She also had a history of malarial trouble. Having excluded in her case the probability of causation from peripheral irritation, as well as by other means, and acting on the probability of its malarial origin, I ordered for her a number of powders similar to those which her husband had used, earnestly requesting her to return and report the result. She did not return, however, and I was left to conclude that she was cured, and that in her case, as in his, gratitude was a much less powerful motive than pain.

3. *Syphilis* figures not infrequently as a cause of prosopalgia. In three cases of this affection, in which, though no definite syphilitic history could be elicited, I found reasons that made me strongly suspect syphilitic causation, there was entire arrest of the pain after the administration of potassium iodide combined with mercuric biniodide, though other remedies had previously been tried in vain. These three cases were females, in whom, as is well known, to establish the fact of syphilitic infection, with the resulting history, is generally beset with peculiar difficulties, and is often impossible.

4. *Cold.*—From the comparatively small number of cases of trigeminal neuralgia that I see, in which cold seems to have acted as the exciting cause, I might be led to doubt the frequency of such causation. At the same time I have not the least doubt of the potency of cold, especially when combined with moisture and a driving wind, in inducing a neuralgic attack in one who is already predisposed by other causes. Exposure of the whole person out of doors will, in my opinion, rarely be assigned by the patient as the cause of the neuralgia, while a draught of cold air directly on the face will more commonly be thought the cause. Trifacial neuralgias from cold are, as a rule, I believe, contracted within doors, or at least while under shelter, and during sleep, rather than in the open

air. At the same time, neuralgic patients are by no means very tolerant of exposure, and are taught by experience carefully to guard the affected part against sudden change from a high to a low temperature as against any other irritant.

The following case, I believe, illustrates my position:

Case IV.—A. S., female, from Ireland, aged forty-two years, married, presented herself October, 1877, complaining of pain in the face, especially affecting the ophthalmic branch of the fifth. This had come on one morning after exposure by night to a draught of cold air from an open window. There had at first been swelling and pain in the side of the face opposite to the neuralgia, a circumstance which puzzled me.

In the following case it is difficult to say which factor played the most important *rôle* in the causation of the neuralgia, general exposure to cold or decayed teeth.

Case V.—G. F., male, aged twenty-one years, horsedealer, one week ago (April 22, 1878), a short time after getting wet and chilled through in the rain, took severe pain of a shooting sort, in the left superior maxilla, which radiated to the eye and brow. There was a sensation of heat in the left eye, which was reddish and discharged water. He applied a mustard plaster to the face and thus obtained relief.

At the time I saw him he was not suffering pain, but in the upper jaw of the same side I found the stumps of three molar teeth which had been left in an attempt to draw the teeth six months before. These, however, were not tender, and no tender points were discovered about the head.

5. It has not been my fortune in Demilt Dispensary practice to meet with any cases of prosopalgia due, in my opinion, to reflex irritation from pregnancy, etc. This division, therefore, is not illustrated by a case.

6. *Peripheral Irritation of the Nerve from Material Cause.*—Decayed teeth, and periostitis about the fang of a tooth, or the alveolar process of the jaw, are frequent causes of pain in the fifth pair of nerves, and often call for the interference of the dentist or surgeon.

7. *Central Lesion. Case of Trigeminal Neuralgia symptomatic of Basilar Meningitis.*

Case VI.—J. M., male, aged thirty-two, laborer, came complaining of severe pains in the face (first and second divisions of the fifth), which were subject to exacerbations of great violence, and were accompanied by dizziness and a "tight feeling" about the forehead, disturbance of vision, great impairment of hearing, deep-seated pain and sensation of fullness in the head, with neuralgic pains in the neck and between the shoulders, together with tingling sensations in the fingers. He had also had diplopia. The patient had a flushed face and injected conjunctivæ. This flushing, the man informed me, only dated from the time of his attack, and he did not use liquor.

Thirteen years before the man had had venereal ulcers not followed by a skin eruption.

I regarded the facial neuralgia as symptomatic of a basilar meningitis extending downward, probably upon the cord, as low as the cervical enlargement, the cause of which was probably syphilis. Liberal doses of potassium iodide, with mercuric biniodide, were ordered, and in a few days the man returned and reported great improvement in the trigeminal neuralgia, as well as the other pains. This is a case in which the use of the actual cautery over the upper portion of the spine would undoubtedly be of benefit.

Though vaso-motor disturbances are not of uncommon occurrence in connection with trigeminal neuralgias, yet I do not recollect to have seen another similar case in which there was such general and persistent flushing of the face and conjunctivæ. As illustrative of my eighth division, let me give one or two cases.

8. *Tic-Douloureux, or Epileptiform Neuralgia. Relief after the Internal Use of Crystallized Aconitine.*

Case VII.—J. D., aged thirty-two years, printer, presented himself February 15, 1878, suffering with attacks of violent pain in the first and second divisions of the right trigeminus, accompanied by clonic spasm of the facial muscles attached to the angle of the mouth on the same side. The pain was lightning-like in the suddenness of its onset, and was of the most acute form, causing him at the time of the attack to writhe with agony, and press his hands against the painful cheek. The affected side of the face was extremely sensitive, and intolerant of the slightest irritation, so that the effort to masticate food, to wash his face, and even talking, brought on the attacks. These were of great frequency, and while under observation he was seized several times. The right cheek was flushed, and the conjunctiva injected. About eight months before, this man had been treated successfully by me for a milder form of the same affection. The use of phosphorus and cod-liver oil, with other tonics, had at that time sufficed to entirely relieve him. From that time he had been free from pain until the onset of the present attack, which was not long before coming to the dispensary. He had a good family history, and was not affected with syphilis.

There were several decayed teeth in the jaw, but these were not sensitive, and were not, in my opinion, likely to be the cause of the affection.

Efforts to give relief by means of large doses of quinine were unsuccessful; morphine gave only temporary relief; phosphorus and cod-liver oil, persisted in for a number of days, were ineffectual. I then decided to use aconitine, after Gubler's plan, and ordered the following:

℞. Aconitiæ crystal., gr. ⅙.
Alcohol, q. s.
Aquæ, q. s. ad ℥ ij.
M. et ft. solutio.

The patient was directed to take one teaspoonful every eight hours, until either the physiological symptoms of aconitine were produced or the pain was relieved. At the same time the phosphorus was continued. In two days he returned and reported that the medicine had produced no effect, and the pain had not abated.

The prescription had been put up by an apothecary of unknown reliability. Thinking that the fault probably lay in the quality of the alkaloid, which, according to Gubler, should be strictly crystallized aconitine, I repeated the same prescription and directed him to procure it of Mr. Neergaard.[1]

I will not prolong this paper by going into details, save t say that the first dose, $\frac{1}{96}$ gr., produced entire relief of pain, followed by numbness of the mouth, tongue, and face, with peculiar sensations in the periphery; that on recurrence of the pain the following day $\frac{1}{64}$ gr. was taken, with less physiological effect and less relief of pain; that on the third day two doses, each the equivalent of about $\frac{1}{64}$ gr. of crystallized aconitia, were taken, one in the morning and one in the evening, and that only after the latter dose was there relief of the terrible pain. Finally, after a dose of about $\frac{1}{48}$ gr. of aconitia, the pain remained entirely absent for the following eight days, and then returned with severity.

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[1] The preparation used was manufactured by Duquesnel, of Paris.

This certainly goes to show that aconitia is capable of removing pain of the trigeminus, which other drugs do not relieve, by benumbing the nerve. In this case there seemed to be speedily developed a certain toleration of this powerful alkaloid.

The internal use of aconitia for the relief of trigeminal neuralgia, let me remark, should be resorted to only with the greatest care and circumspection, and is not well adapted for dispensary use.

Proceedings of Societies.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, April 16, 1878.

Dr. W. T. LUSK, Vice-President, in the Chair.

Dr. G. T. HARRISON reported a case of extra-uterine pregnancy in a colored woman twenty-eight years of age. The condition had been mistaken for retro-uterine hæmatocele. On the 9th of February last she had been seized with a sharp attack of pain in the lower part of the abdomen while attempting to lift a boiler from the stove. February 24th she had a chill, followed by a temperatnre of 104°. On the 28th she had another chill, and the temperature rose to 105½°, and there were vomiting and purging. On the same day Dr. Harrison made an incision in the vagina, behind the uterus, and removed a decomposing fœtus about four months old. The placenta was left *in situ*, and the cavity washed out with hot water and carbolic acid. A slow but constant flow of carbolized hot water was secured by a glass tube and an extemporized rubber syphon. The next day the temperature had fallen to 101°. The patient made a good recovery.

Dr. **Hunter** presented a portion of an os uteri removed by Dr. Thomas, for epithelioma. The galvano-caustic wire was used, heated by Byrne's battery. All the diseased tissue appeared to have been removed.

Dr. **Chamberlain** mentioned a case in which the same operation had been performed for epithelioma, five years ago. The patient was still living, and had had no return of the disease.

Dr. **McLane** asked if there was much probability in such cases of the appearance of the disease in other organs.

Dr. **Noeggerath** said it was his impression that, where all the diseased tissue was removed, the prognosis, in cases of amputation of the neck of the uterus for epithelioma, was good. But cases where all the diseased tissue could be removed were extremely rare. He had seen the case mentioned by Dr. Hunter, and considered it a very favorable one in that respect. It was also an illustration of the fact, to which Dr. Noeggerath had directed attention some time ago, that epithelioma often develops in consequence of areolar hyperplasia.

Dr. **McLane**, in opening the discussion on the "Treatment of Albuminuria during Pregnancy," reported the case of a patient thirty-two years of age whom he had been called to see March 19th. She was then seven and a half months pregnant. Her previous labors had been normal. At the time he was called she had some œdema, and headache. On the 20th the headache was very severe, and the urine contained a large quantity of albumen. He advised the induction of labor, and accordingly introduced a flexible catheter, and used the hot douche. Two hours afterward the patien had a convulsion, but not a very severe one. As soon as it had passed, he used chloroform, and, finding the head presenting, proceeded to turn and deliver, version being accomplished by external manipulation without the introduction of the hand into the uterus. There was no uterine contraction, and he allowed bleeding from the uterus to the extent of 10 or 12 ounces. At 11 o'clock there was a second convulsion, and at 12.30 a third one. Chloroform was pushed; but at 2.10 there was a fourth convulsion, and at 3.30 a fifth. The last two were very severe, and lasted longer than any he had ever seen; more chloroform was given, and ten minims of Magendie's solution of morphia were administered hypodermically, and the patient remained comatose till 9 the next morning. There was then complete suppression of urine. She was put in a hot pack, and four drachms of Squibb's fluid extract of jaborandi given by enema. The result was a profuse sweating, followed by very excessive salivation, lasting 11 hours. In the afternoon the secretion of urine was free, and found to contain only 10 per cent. of albumen and a few hyaline casts. The next day 5 pints of urine were passed, containing 10 per cent. of albumen. A large quantity of water was given by the mouth, and milk also. The patient continued to improve till 5 o'clock on the morning of the 23d, when she was found to be cyanotic, with rapid breathing, and died as suddenly as if she had been shot. Thrombosis probably caused death, but an autopsy was not allowed.

In reviewing this case, Dr. McLane said that labor was induced about as soon as possible after the condition was recognized. With regard to the jaborandi, he thought it a question whether robbing the blood of so much fluid might not favor the formation of heart-clot.

He had been surprised at the last meeting to hear that the induction of labor in these cases was not considered good practice. Where there was anything approaching fifty *per cent.* of albumen he would not hesitate.

Another point connected with his case was the facility of performing version. The entire time occupied, from beginning the dilation of the cervix to delivery, was only thirty-five minutes.

Dr. **Hanks** believed the later authorities would sustain Dr.

McLane. He thought it well to wait until it was evident that no improvement was taking place in the condition of the urine.

Dr. **Noeggerath** said that at a previous meeting it had been stated that thirty *per cent.* of pregnant women had albuminuria. He thought the proportion was not greater than thirteen or fourteen per cent. It had been further stated that it was safe to treat cases of albuminuria, during pregnancy, by saline diuretics. He had often seen such cases too late. Under certain circumstances, if albumen was present, it was proper to induce labor as rapidly as possible. It was neither the amount of albumen nor of other constituents of the urine which indicated the immediate danger of convulsions. He considered two conditions ominous: I. Albuminuria coexisting with anæmia, or hydræmia. II. Albuminuria coexisting with some nervous disturbance, as severe headache, or dimness of sight. Another dangerous class was that in which albuminuria occurred in very plethoric subjects, where the pulse was very full and hard. If, however, a patient in ordinary health was found to have a slight amount of albumen in the urine, there was no objection to waiting until remedies had been tried. There was only one reliable remedy—Tarnier's treatment by skim-milk. He had seen albumen diminish considerably within three days under its use. Another remedy he was astonished not to hear spoken of was chloral. He mentioned a case in which the albumen disappeared from the urine as long as chloral was given, and reappeared as soon as it was stopped. There were different forms of albuminuria. That of pregnancy was not the same as that which caused the serous effusion of dropsy. Chloral had, perhaps, some influence in changing the character of the albumen.

Dr. **McLane** said he had tried the milk treatment in four or five cases without any success. They were all cases where albuminuria appeared early in pregnancy. In one case the albumen continued to increase as long as the milk was taken —the more milk the more albumen. The results obtained were directly opposite to those obtained in non-pregnant cases.

Dr. **Mann** wished to explain a statement made at a previous meeting, that thirty *per cent.* of pregnant women had albuminuria. Dr. Gillette had merely intended to say that, in the 100 he had examined, he had found 30 cases of albuminuria.

He also directed attention to the statement of Dr. Roberts, that the amount of albumen in urine could not be estimated within twenty-five *per cent.* by the amount of deposit in the test-tube.

Dr. **McLane** thought the amount could be approximately estimated.

Dr. **Noeggerath** agreed with Dr. McLane.

Dr. **Garrigues** asked if the profuse salivation described by Dr. McLane might not be due to the large dose of jaborandi given. He had caused profuse perspiration and slight salivation with one drachm. He had used the remedy in ascites from yellow cirrhosis, and in uræmia, in non-pregnant women.

Dr. **Watts** had produced violent perspiration, salivation, and emesis, with drachm doses of Squibb's fluid extract o jaborandi. He was using it in chronic bronchitis, in five drop doses, every three hours. It did not salivate, but induced continuous moisture of the skin. He had another patient, a lady seventy-six years of age, in whom six drops caused perspiration and salivation.

Dr. **Lusk** said he thought Dr. McLane acted judiciously in the management of the case described; but he was surprised that he should assume that the induction of labor in albuminuria was generally accepted as a rule of practice. He thought that view was accepted only by a small minority of the profession, and that there was a good deal to be said on the other side. He would like to see interference confined to such cases as Dr. McLane had related—where life was absolutely imperiled, and the induction of labor gave the patient the only chance. In the majority of cases, where there were simply headache and dizziness, and other symptoms betokening convulsions, it was better to treat the conditions and wait than to interfere.

Stated Meeting, May 7, 1878.

Dr. A. J. C. Skene, President, in the Chair.

Dr. Mann reported on the specimen of amputated os uteri presented by Dr. Hunter at the last meeting, that it proved to be epithelioma.

Dr. B. F. Dawson exhibited a child seven weeks old, the subject of a congenital tumor of the right thigh, of the color of the adjoining tissue, and about the size of a cocoa-nut. It had been opened by the attending physician on the night of birth, and an ulcerating surface remained. The growth was believed to be a myxo-sarcoma. The mother had had five other children, all healthy.

Dr. Jacobi said the tumor was not an uncomplicated one, but contained hard and elastic masses, and cyst-like portions, which yielded an obscure fluctuation. The diagnosis of myxo-sarcoma was probably correct. It did not originate in the skin or subcutaneous tissue, but in the deeper parts, possibly in the periosteum, or even in the bone itself—very probably in the cellular structure of the lower portion of the epiphysis of the thigh.

Dr. Jacobi presented the head of an anencephalus. The child had been born alive, but had not cried or been able to swallow.

Dr. R. Watts reported a case of complete inversion of the uterus, with a fibroid. The patient was a colored woman. The fibroid tumor was enucleated in March, 1877, and an unsuccessful attempt made to reduce the inversion. Three other attempts at reduction were made, the last of which, in February 1878, was successful. The operation lasted three hours and a quarter.

Dr. Watts directed attention to the ease with which the fingers could be pressed into the depressed fundus uteri by passing the hand into the rectum.

Dr. Dawson said the same method had been employed in a case of inversion reported in a recent number of the *Buffal Medical Journal*, but the finger of the other hand was passed into the bladder, and pressure made on the fundus with both thumbs.

Dr. J. G. **Perry** related the history of a case of intussusception of the uterus after a labor otherwise normal. The patient was a multipara twenty years of age. He noticed after delivery that the fundus receded and disappeared, and suspected inversion; but on examination found it a perfect case of intussusception. The fundus had sunk into the cervix. The woman had three convulsions, and a fourth was averted by the use of chloroform. After about an hour the uterus contracted well and went into place. The child was not unusually large, and there was no laceration of the cervix or perinæum.

Dr. **Noeggerath** thought the condition might be caused by extreme dilatation of the vagina.

Dr. **Skene** said the case was what had been described as "squatting uterus," and was common after miscarriage. He had never seen it after labor at full term.

Dr. **Noeggerath** said the term "squatting uterus" was introduced by Dr. Tilt to describe the first degree of inversion. The convulsions formed a very interesting feature of Dr. Perry's case.

Dr. **Hunter** mentioned that, in the case of amputation of the uterus reported at the last meeting, a profuse hæmorrhage occurred suddenly seven days after the operation, and could be checked only by free use of persulphate of iron, and a firm tampon. Another profuse hæmorrhage occurred one week later, and a third, less profuse, about five days later. The latter was checked by the application of nitric acid.

Dr. **Ward** had had severe hæmorrhage in a similar case six days after the operation.

Dr. **Noeggerath** had known severe flooding to occur eight or nine days after a similar operation—the removal of the os uteri with the galvano-caustic wire.

Dr. **Mann** recalled a case of hæmorrhage, which occurred in the Stranger's Hospital about ten days after the same operation.

Dr. **Noeggerath** said the subject was a very important one, now that the method of cauterizing the pedicle after ovariotomy was being revived abroad.

Dr. Jacobi reported that the case of pseudo-hypertrophy exhibited by him at the meeting held March 19th, had improved rapidly under mercurial treatment and the galvanic current. The circumference of the thigh had diminished two or three centimetres, and the whole condition was very promising.

Dr. Thomas described a case of ovarian tumor in which about a month ago the cyst had collapsed, and the tumor entirely disappeared. The patient recovered in a fortnight, but after another fortnight the cyst, which had refilled, again ruptured. The peritonitis was not so severe as the first time, but the patient was rapidly depreciating in strength. The collapsed cyst could be felt in the right iliac fossa. Ovariotomy was performed, and the peritoneal cavity was found full of ovarian fluid, the cyst having almost entirely emptied. The wall was excessively thick, but was weak in one point, evidently from ulceration, where there was an opening not larger than a knitting-needle. The cyst was rapidly removed, and secured by a clamp. A glass drainage-tube was left in. The patient recovered.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 18, 1878.

Dr. S. S. Purple, President.

Supra-Condyloid Amputation of the Thigh.—Dr. J. W. S. Gouley read an interesting paper on supra-condyloid amputation of the thigh. It was discussed by Dr. R. F. Weir. Several photographs were shown.

The Intra-Venous Injection of Milk as a Substitute for the Transfusion of Blood.—Dr. T. Gaillard Thomas read an i portant paper on the above subject, as published in the M number of The New York Medical Journal.

Dr. Hutchinson said that his experience with intra-ven injections was confined to five cases, in which a saline solution containing alcohol was used. The method was practised in the stage of collapse in cholera, and, although immediate improvement occurred, death resulted within twenty-four hours. Dr. Hutchinson was of the opinion that the failure was in great part due to the fact that the saline solutions did not form the proper fluid to be employed.

Dr. JACOBI said the reason that saline solutions proved of transient benefit was, that they were quickly eliminated. One reason of the bad effect of milk injections, he thought, was that they might be acid; and he had found that cows were liable to have acid milk in their udders, due probably to their habits or food. It was important that the milk be tested with litmus before being used, as the injection must not only be not acid, but be alkaline. Another precaution to be taken was not to inject too much fluid at a time.

Dr. THOMAS coincided with Dr. Jacobi in the danger of too great an amount of fluid being used in injections, as he had found by experience in the cases reported. He thought that the proper amount was from five to eight ounces.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, April 24, 1878.

Dr. JOHN C. PETERS, President.

Cancer of Rectum; Secondary Cancer of the Liver.—Dr. MARK BLUMENTHAL presented a specimen of cancer removed from a woman sixty-six years of age. The patient was the mother of six children, and had been in ordinary health until ten weeks before her death, when she came under observation suffering from pain in the abdomen. The pain was thought to be due to constipation, but it was found to continue after the bowels were moved. On examining the rectum a hard body was discovered, about three and a half inches above the anus. This was diagnosticated as scirrhus. Two weeks subsequently a hard tumor was found near the ilio-cæcal region, extending upward and toward the median line. On palpation no pain was complained of, and, from the fact that it was compressible, some physicians who examined were of the opinion that it consisted of fæces. Cathartics were administered, and although they acted freely the tumor did not decrease in size. The patient was then placed under an anæsthetic, and the rectum thoroughly examined. A stricture was found, so complete as not to allow of the introduction of the tube of a syringe. Death took place from exhaustion.

Autopsy.—The descending colon was contracted for a distance of six inches. The tumor of the rectum, which was diagnosticated during life, was discovered. The uterus, ovaries, and bladder, were fused in one mass. The tumor in the abdomen proved to be medullary cancer of the liver. It weighed seven and a half pounds. An interesting point in connection with it was that the fingers made dents in it when pressure was made through the abdominal walls, and for this reason it was mistaken for a mass of fæces. Dr. Blumenthal said that when the patient was first seen the abdomen was examined, and no sign of tumor was discernible.

Dr. Loomis said that cases of secondary cancer of the liver developing rapidly were not rare. He had a case in hospital under observation suffering from cancer of the rectum, and in four weeks the disease involved the liver very extensively.

Lympho-Sarcoma of Mediastinum and Lung.—Dr. E. G. Janeway presented an exceedingly interesting specimen of lympho-sarcoma of mediastinum and lung. The history was as follows: A woman, aged forty-seven, entered Bellevue Hospital, February, 1878. On admission, she said that she had been sick for two months, suffering from cough, with sputum. She stated, also, that she had an attack of pneumonia seven years previously. When she was examined in hospital there was found to be flatness over the sternum and left upper lobe of the lung. There was also pulsation of the sternum, which extended to the left. On auscultation, bronchial breathing was heard. It resembled that heard in pleurisy with effusion, the element of distance being observable. Turgescence was noticed at the base of the neck. When the patient was admitted she was suffering from dyspnœa. The pulse was from 100 to 110. Temperature 100° to 99°. The transverse measurement on the left side was half an inch greater than on the right. After admission to hospital there was no sputum. As the case progressed, the glands at the base of the neck became enlarged, œdema appeared on the face, then in the upper and finally on the lower extremities. During the last four weeks there was obstruction of the left lower bronchus, and absence of respiration over the left lower lobe. The heart became displaced to the right. The dyspnœa increased, due, as it was supposed, to fluid, although the diagnosis of tumor of the mediastinum had been made. A needle was introduced, and from four to six ounces of tenacious pus removed. The pus, it was afterward found, came from the lungs.

Autopsy.—A tumor of the mediastinum was discovered, which extended to the right, and involved half of the lung. The aorta was compressed, its calibre corresponding to the size of the little finger. The vena innominata was also diminished in size. The left bronchus was surrounded by the growth, and in its cavity was a small mass. The tumor began in the centre of the lung, and extended to the surface, involving the pericardium and being adherent to it. It extended upward along the trachea, and backward to the posterior mediastinum. In the specimen presented, the sternum was found adherent. There were cavities in the lung, and from one of these cavities the muco-pus removed by aspiration was obtained. Enlarged glands were found at the base of the neck. The specimen was one of lympho-sarcoma, or connective tissue cancer.

An Abstract of some of the Cases of Tumors of Cerebellum presented to the Society.

The President read an abstract of cases of cerebellar tumor which he had collated from the records of the Society.

Cystic Tumor of Cerebellum. June 28, 1854. Dr. Thomas M. Markoe.—Girl, aged fourteen, had attacks of headache each month at eleven; difficulty in walking, with increased pain in the head at thirteen; and for the last five months of her life had attacks of convulsions every four or five days. Death took place in a convulsion.

Autopsy.—A spheroidal fibro-cyst on the upper part of the cerebellum pressed down through the fourth ventricle upon the medulla oblongata. There were six ounces of serum in the ventricles. The convulsions and headache were due in all probability to pressure on the sensory and motor tracts. Death resulted from distention of the ventricles. The president said it was remarkable that a tumor so near the floor of the fourth ventricle did not give rise to any continuous symptoms.

Tubercle in the Cerebellum and Crus Cerebelli, with Cerebellitis. January 28, 1857. Dr. THOMAS M. MARKOE.—Boy, aged four. After an attack of cholera infantum in infancy, had convulsions of arms and legs. When two years old, had attacks of shaking of the head; subsequently was noticed to have spells of turning round. These spells were checked when he was reproved. When three years of age, had screaming fits at night. Death resulted from tubercular meningitis, characterized by the usual symptoms and lasting seventeen days.

Autopsy.—Ventricles distended with serum; walls softened. Sero-pus in the upper part of cerebellum. A tubercle half an inch in diameter was found on the surface, and partly imbedded in the substance of the cerebellum; it pressed on the crus cerebelli.

Myxoma of Cerebellum and Crus Cerebelli. April 27, 1859. Dr. ALONZO CLARKE.—Girl, age twenty-one. Had attacks of intense headache with nausea and vomiting lasting from twenty-four to thirty-six hours, and continuing during three months previous to her death. During the last six weeks of her life, had unsteadiness of gait, irregularity in movement of hands, a stupid expression of countenance, double vision, and impairment of sight of right eye. It was noticed that when in bed there was a tendency to roll over on the left side. The headache was relieved by inhalations of ether; and, on adminstering it for the fourth time, respiration suddenly ceased.

Autopsy.—A tumor measuring three inches in length, two and a half in width, and three quarters of an inch in depth, and resembling in appearance an oyster, was found in the left lobe of the cerebellum. The tumor contained no nerve structure and was developed in the white substance of the cerebellum, and covered over by an investment of the cortical portion. It projected into the crus cerebelli and pressed upon the medulla oblongata, the inferior portion of the fifth ventricle, and the calamus scriptorius.

Cyst of Cerebellum.—Woman, aged thirty-four. Had severe but long-continued pain in head, from which she recovered, but relapsed six months before death. The pain was paroxysmal and severe. In the intermissions, she was comparatively comfortable. There was deafness in right ear, but no disturbances of sight. Death took place during a paroxysm of pain.

Autopsy.—There was found a cyst the size of a hen's egg in the right hemisphere of the cerebellum. It was lined with a delicate membrane and contained a clear yellow fluid.

Cyst of Cerebellum.—Man, thirty-two. Had intense headache on right side for six weeks before his death. There was imperfect vision in the right eye, and slight loss of motion and sensation in his lower extremities. Death took place suddenly while eating his dinner. Considerable benefit resulted from the use of blue pill.

Autopsy.—There was a cyst the size of a pigeon's egg imbedded in the right side of the cerebellum, and almost covered by the cortical substance. The walls were thin and vascular, and it contained a thick fluid.

Tubercle of Cerebellum. May 25, 1863. Dr. Alonzo Clarke.—Man aged thirty-two. Entered Bellevue Hospital April 27, 1863, suffering from tuberculosis of lungs and manifesting cerebral excitement. April 28th, during day delirious. Died April 29th.

Autopsy.—Congestion of cerebral vessels over hemispheres, opacity of arachnoid, with effusion beneath. Right lobe of cerebellum softened, and in its substance a cheesy mass harder than the tissue of the cerebellum. Lungs and spleen tubercular.

Apoplexy of Cerebellum. Dr. T. C. Finnel.—Woman, aged thirty-five. While conversing with a friend suddenly became pale and in a few minutes died.

Autopsy.—Laceration of the left lobe of the cerebellum, with extravasation of large amount of blood, which extended beneath the dura mater in the neighborhood of the foramen magnum. Dr. Alonzo Clarke thought that many cases of sudden death in apoplexy were due to paralysis of the respiratory nerves by the presence of effused blood at the base of the brain.

Cystic Disease of Cerebellum. Dr. Enos.—Man, aged forty-five. Book-keeper. Noticed five years before his death that he was unable to guide his right hand in writing. Subsequently the right leg became affected in similar manner, causing him to walk as if intoxicated. Then his vision began to fail. Severe pain was felt behind the ear, but was relieved by counter-irritation. Death took place suddenly.

Autopsy.—The right side of the cerebellum was occupied in great part by cysts. Near the crus cerebelli was a cheesy substance. There were two ounces of fluid in each ventricle, the cornua of which were obliterated; and a large portion of the brain substance seemed to be deficient or absorbed.

Tumor of Cerebellum. 1862. Dr. A. L. Loomis.—Man, thirty-five. Supposed to have typhus fever. Could not turn himself in bed. Had no signs of brain disease, pulse 160. Died suddenly.

Autopsy.—The right lobe of cerebellum contained a tumor the size of a small orange. It was covered with brain substance a quarter of an inch thick. There was no destruction of brain tissue, merely a displacement of the fibres.

Congestion of the Cerebrum. December 28, 1870. Dr. T. C. Finnel.—Man, aged thirty. Complained of severe pain in the head, but not sufficient to prevent him from working. This continued for four days, when the patient died suddenly.

Autopsy.—Intense congestion of cerebellum, with an effusion of four ounces into each ventricle.

The President said that no cases of cancer, sarcoma, oı syphilitic tumor had been presented to the Society.

Bibliographical and Literary Notes.

ART. I.—I. *Cyclopædia of the Practice of Medicine.* Edited by Dr. H. VON ZIEMSSEN. Vol. XVI. *Diseases of the Locomotive Apparatus, and General Anomalies of Nutrition.* By Prof. H. SENATOR, of Berlin; Prof. E. SEITZ, of Giessen; Prof. H. IMMERMANN, of Basel; and Dr. BIRCH-HIRSCHFELD, of Dresden. Translated by E. BUCHANAN BAXTER, M. D., JOHN TODHUNTER, M. D., GODFREY AIGNER, M. D., FRANK P. FOSTER, M. D., and HENRY P. BOWDITCH, M. D. 8vo, pp. xii.–1060.

II. Vol. XIV. *Diseases of the Nervous System, and Disturbances of Speech.* By Prof. A. EULENBERG, of Greifswald; Prof. H. NOTHNAGEL, of Jena; Prof. H. VON ZIEMSSEN, of Munich; Prof. F. JOLLY, of Strasburg; Prof. A. KUSSMAUL, of Strasburg; and Dr. J. BAUER, of Munich. Translated by E. BUCHANAN BAXTER, M. D., ALEX. MORISON, M. B., DAVID F. LINCOLN, M. D., GEORGE B. SHATTUCK, M. D., SAMUEL G. WEBBER, M. D., J. HAVEN EMERSON, M. D., and JOHN A. MCCREERY, M. D. A. H. BUCK, M. D., Editor of the American Edition. 8vo, pp. xviii.–893. New York: Wm. Wood & Co., 1877.

WE were informed by a circular which accompanied volume XVI. of this "Cyclopædia," that the entire series would consist of 17 volumes, instead of 15, as was at first announced. The remaining volumes are supposed to contain about 1,000 pages each. Had the publishers known the exact extent of the work at the commencement of the publication, it might have been arranged somewhat more judiciously, inasmuch as affections entirely unlike are in some instances contained in the same volume, and the title on the outside of the cover mentions but the one class of cases contained therein. Unless the reader is very familiar with the contents of the several volumes, some delay will be occasioned in the attempt to find what may be wanted. Vol. XVI. is labeled on the back, "Diseases of the Locomotive Apparatus," and yet less than one-fourth the space of the volume is devoted to the consideration of the above-named complaints.

In addition to the diseases of the locomotive apparatus, and diabetes, mellitus and insipidus, by Senator, Seitz describes "Slight Disorders caused by Catching Cold;" Immermann contributes "General Disorders of Nutrition," including anæmia and chlorosis, and "Corpulence"; and Birch-Hirschfeld writes upon "Scrofulosis, and Affections of the Lymphatic Glands in General." The biographies of the authors of both volumes are given in Vol. XIV.

Senator treats the subjects assigned to him in an especially satisfactory manner. Were we to analyze his several articles, we should find the same depth of research and thoroughness of discussion. The articles furnished by the other contributors seem exhaustive, and, for the most part, are very valuable; but, as our attention has been especially called to some of the articles of Senator, we will note some of his views, without doing him the injustice to attempt an analysis of them.

In "Diseases of the Locomotive Apparatus" are included the rheumatic affections, gout, arthritis deformans, rickets, and malacosteon. What is generally understood as acute rheumatism, Senator describes under the title of "Polyarthritis Rheumatica Acuta." He objects to the term *rheumatism* as expressing an entity, although he does not find fault with the employment of *rheumatic* as an adjective, inasmuch as it expresses a recognized condition without necessarily conveying any idea of the pathogeny of the affection. He does not believe in a true rheumatic diathesis or dyscrasia. It is stated that there are but two theories in our present state of knowledge which are entitled to be discussed.

The first of these theories is a somewhat old one, having been promulgated both in Germany and in France more than thirty years ago. It supposes a disturbance of innervation induced by a chill which sets up a peripheral irritation. The author seems to accept this view as one of the steps in rheumarthritis, assigning to the nervous system an important place in the process. He says, in explanation, on page 25: "We must suppose either that the abstraction of heat affects the trophic and vaso-motor nerves of the joints directly, thereby exciting inflammatory disturbance in them, or else that it operates as an irritant upon a variable number of the peripheral expansions of centripetal nerve-fibres, through which the irritation is conveyed to the vaso-motor and trophic nerv centres, exciting them to abnormal activity. The latter hypothesis, which assigns a central origin to the joint diseas has more in its favor than the former. It agrees better wit the shifting character of the disorder; and the possibility of an irritation in the central organs of the nervous system being suddenly propagated to the central origin of nerves supplying the most diverse tracts is supported by analogy."

The lactic-acid theory is the second one referred to, and accepted as completing the process, as we observe on page 27:

"A formation of acids and acid salts, of lactic acid and acid potassium phosphate, takes place during muscular exercise; and it is to the accumulation of these products that muscular fatigue is due (J. Ranke, Roeber). Under ordinary circumstances, these products are undoubtedly eliminated; the lactic acid, more particularly, is partly oxidized and got rid of as carbonic acid and water; partly—when there is a great deal of it—excreted unaltered in the sweat. Now, should the cutaneous surface be chilled, the elimination of these substances will be checked, and they will necessarily accumulate in the system until they can be otherwise excreted or decomposed.

"We thus have certain knowledge of the presence of at least two pathogenic factors whenever the body, heated and perspiring from exertion, is suddenly chilled. On the one hand, the joints are specially predisposed to disease; on the other, an abnormal amount of certain acids and acid salts, especially lactic acid, is accumulated in the system."

On page 39 Senator explains the shifting character of the affection:

"We may suppose that some phlogogenic matters, endowed with a special affinity for the joints and certain serous membranes, and with a special tendency to cause exudations of serous fluid, are introduced into, or generated in, the system *intermittently*. Or we may imagine that various trophic centres, specially related to particular joints, are successively attacked."

With regard to the special nature of cerebral rheumatism, the author is of opinion that the cerebral symptoms are consequent upon the increased temperature of the body, although nothing can be stated respecting the cause of the elevation.

The author devotes a short section to the consideration of "Gonorrhœal Arthritis," in which he says of its pathogeny, "the most probable is, that the inflammatory irritation is gradually propagated from the urethra to the sacral plexus and the spinal cord, where it affects trophic nerve-fibres." We incline to agree with Ashhurst[1] in the opinion that what are known as "gonorrhœal rheumatism" and "urethral fever" are mild types of pyæmia.

When the text was written the author had not expressed or formed an opinion as to the value of the salicin and salicylic acid in the treatment of rheumarthritis; but during the translation of the work he expressed a desire to the translator, Dr. E. B. Baxter, that he would append a note concerning the same, which he has done, at the end of the volume. In this note he makes use of Senator's views, as well as of the experience of others. Salicin seems to be regarded as favorably in the treatment of an acute attack as the salicylic acid; and it may be stated that it possesses some advantage over the latter, so far as pleasantness of administration is concerned. A medium dose of salicin for an adult male is stated at 15 grains, repeated every 3 hours, although more may be required. It seems to prove the more serviceable in the most acute cases.

In passing, we will give our readers Senator's theory of diabetes mellitus, although in a short space we cannot do the author justice, and must necessarily omit much connected with his able discussion. He thinks the disease may originate from two sources primarily, namely: 1. From the nervous system; and, 2. From disorders of the digestive organs, including the liver. He sums up his discussion of the mechanism of the disease in the following succinct style, on page 965:

"*1. An abnormally heightened saccharinity of the chyle, or of the portal vein, or of the two together, in consequence of an impeded conversion of the sugar present in the intestine into lactic acid, or in consequence of accelerated absorption of sugar. 2. An unnatural acceleration of the portal circulation, whereby, on the one hand, more sugar reaches the liver, a part of which, without being changed into glycogen, passes on into the circulation; and, on the other hand, the glycogen formed from sugar, or other materials, passes into sugar more rapidly and in greater quantity, and is washed away.*"

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[1] "Principles and Practice of Surgery," 1871.

These two modes, the author thinks, may act together simultaneously. Instead of an increased glycogenic activity on the part of the liver, he is of the opinion that the activity of the liver in forming glycogen is not sufficiently powerful.

In Vol. XIV. Eulenberg contributes the section on "Vaso-Motor and Trophic Neuroses," including hemicrania, angina pectoris, unilateral progressive muscular atrophy of the face, Basedow's disease, progressive muscular atrophy, and pseudo-hypertrophy and true hypertrophy of the muscles; also that on catalepsy, tremor, paralysis agitans, and athetosis; Nothnagel contributes an exhaustive section on epilepsy and eclampsia; Bauer writes upon tetanus; Von Ziemssen contributes an article on chorea; Jolly writes a very elaborate article on hysteria; and Kussmaul contributes the section on "Disturbances of Speech." This section is very elaborate, covering more than 300 pages, and is divided into 36 chapters.

We are able to speak in the same favorable terms of the character of the articles in Vol. XIV. as of those in Vol. XVI. Some of the articles are possibly somewhat more elaborate than the general busy practitioner will care to peruse, yet, as a whole, the exhaustive character is what is sought for. Amid the labyrinth of pathological discussion, the practical features of these subjects are not neglected. The translation in both volumes is excellent. After reading certain translated works, so much like the original do they seem that we really appreciate the fluent English met with on every page of this "Cyclopædia."

ART. II.—*Transactions of the Medical Society of the State of New York for the year* 1877. Albany: Van Benthuysen, 1877. 8vo., pp. 479.

This volume is one of the most interesting hitherto issued by the Medical Society of this State; there are published thirty-two scientific articles of variable length, besides the minutes of the several sessions, obituary notices, etc., etc.; and it may truly be said that nearly every article possesses real practical merit.

The first article is written by Dr. R. W. Pease, of Syracuse, entitled "Improved Method of Diagnosis and Treatment of Stricture of the Urethra, with a Tabulated Report of Forty-five Cases." Adopting the views of Dr. F. N. Otis, the author says the normal size of the urethra has a circumference bearing a definite relation to that of the flaccid penis, although he does not tell us what that relation is, and claims that a *perfect cure* of a stricture may be expected in nearly every case providing that *division* of the fibres constituting the stricture is *complete*. The parts divided should be dilated with a sound of the *same size as the normal urethra*, so long as bleeding attends the introduction of the sound. It is claimed that it is unnecessary to repeat the operation weekly during life, as most authorities maintain.

Dr. J. Kneeland, of South Onondaga, reports "Four Cases of Sudden Death; Coroners' Inquests." This paper was ably discussed by Dr. Rochester, of Buffalo, who stated that *post-mortem* examinations at coroner's inquests frequently failed to elicit the real cause of death, and cited two cases in illustration.

Dr. A. Van Deveer, of Albany, has a paper on "Operation for Closure of Cleft of the Hard Palate, with Report of Cases;" and Dr. D. H. Goodwillie, of New York, reports "A Case of Congenital Cleft of the Hard and Soft Palate, with extensive Hypertrophy of the Left Inferior Turbinated Bone."

Dr. H. T. Hanks, of New York, read an article on "A New Method of Operation for the Cure of Anteflexion, and the Relief of its accompanying Dysmenorrhœa; with Remarks, and a Tabulated Report of Thirty-seven Cases;" and Dr. John Ball, of Brooklyn, contributes a paper on about the same subject, namely: "Forcible and Rapid Dilatation of the Cervix Uteri, for the Relief of Stricture, Chronic Endo-cervicitis, Conical Cervix, Flexions, Sterility, etc." Dr. Ball supplements the treatment by the employment of the intra-uterine pessary in certain cases, while Dr. Hanks, who uses hard-rubber dilators, reverses the flexion, and retains the uterus in a state of reversed flexion for about twenty minutes. Dr. Ball's first interesting paper was published in this JOURNAL in October, 1873.

Article VII. is entitled "Irido-choroiditis in the Puerperal State," by Thomas R. Pooley, M. D., New York.

Dr. S. L. Parmelee, of Watertown, reports a case of "Punctured Wound of Right Side, causing Injury to Diaphragm, Lung, and Liver: Recovery."

Dr. J. B. Graves, of Corning, and Dr. P. R. H. Sawyer, of Bedford, report each a case of "Fracture of the Base of the Skull, with Recovery."

A. Flint, M. D., writes a paper on "Pneumonic Fever—Grounds for considering Acute Pneumonia an Essential Fever, and not purely a Local Inflammation."

Dr. Mary Putnam-Jacobi, reports "Two Cases of Convulsive Disease without Convulsions."

"Heredity as a Factor in Pauperism and Crime" is the title of a paper by Dr. E. H. Parker, of Poughkeepsie. This paper was discussed by a number of members. We have space only to mention it.

In "Some Practical Points in the Treatment of Stone in the Bladder, with an Analysis of Eight New Cases," Dr. J. W. S. Gouley makes prominent the fact that "the operation should be selected for the case and not the case for the operation." He says "all the operations are good when they are indicated, and bad when they are not."

George Bayles, M. D., of New York, writes an interesting article "On the Experimental Use of Amyl Nitrite in Ten Cases of Pertussis." The remedy employed by the author seemed very effectual in completely controlling the disease if inhaled at the outset of the paroxysm, especially if quinine in large doses was being administered at the same time.

Dr. C. H. Giberson contributes a paper on "The Cold Bath in Scarlatina, with Clinical Notes."

Dr. A. Hutchins, of Brooklyn, writes upon "Jaborandi," giving the indications for its employment.

F. P. Foster, M. D., writes "On a Means of rendering Vaginal Injections safe and efficient."

Frederick Hyde, M. D., of Cortland, writes on "Some of the Morbid Conditions of the Prostate Gland and their Treatment."

Dr. N. L. Snow, of Albany, reports a case of "Pseudo-Membranous Laryngitis in a child Aged Fifteen Months-Tracheotomy—Relapse and Recovery."

Dr. Lewis Post, of Lodi, contributes a paper on "Tar Fumigations in Gangrenous Sores."

"Hydrochlorate of Ammonia—Ammoniæ Murias" is the title of an article by Dr. C. G. Pomeroy, of Newark, N. Y.

Henry G. Piffard, M. D., of New York, writes a good article "On certain Points relating to the Nature and Treatment of Lupus."

Ira F. Hart, M. D., of Elmira, writes on "Hereditary Transmission of Diseases," and suggests that scrofulous and cancerous diseases may be the result of hereditary taints. The author seems to urge a system of inspection which will guarantee immunity from disease in low places. We are inclined to think it would be wiser to enforce the execution of rigid laws against licentiousness itself in all places.

Joseph C. Hutchinson, M. D., of Troy, writes on "Hæmophilia."

Dr. Israel Parsons, of Marcellus, N. Y., relates his "Experience in Arm and Shoulder Presentations." We mention this article merely to caution the reader against indiscriminately following the advice of the author, in attempting to induce cephalic version in the above named cases. There is nothing new in the suggestion—indeed, full discussions upon the comparative advantages of cephalic and podalic versions have been furnished by Simpson, and, before him, by Flamand. Cazeaux[1] gives very good rules for the choice of operations. Aside from the impossibility in certain cases of inducing cephalic version, we are of the opinion, as a rule, that if the labor is much advanced, with rupture of the membrane, the podalic version is much easier, and safer to both mother and child.

Dr. George Burr reports "Cases of Wounds of the Synovial Membrane of the Knee-joint successfully treated without Antiseptic Appliances."

H. N. Eastman, M. D., of Oswego, contributes an article "On the Action of Mercury," giving it a more prominent place in therapeutics than we should be inclined to do, in view of the many safer remedies which may be used in its place in many instances.

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[1] "A Theoretical and Practical Treatise on Midwifery," etc., 1869. P. 934–'5.

Dr. S. F. McFarland, of Oxford, writes on "Opium Inebriety, and the Hypodermic Syringe."

Dr. William H. Bailey, of Albany, publishes an interesting "Case of Fatty Embolism" without fracture of the long bones.

Dr. A. O. Kellogg, of Poughkeepsie, contributes a paper "On the Duties and Responsibilities of General Practitioners toward Melancholiacs and Suicides," in which the removal of this class of individuals to asylums is recommended.

The scientific portion of the volume closes with an extended and interesting "Report of the Committee on Hygiene."

The volume is presented in handsome style.

ART. III.—*A Manual of Nursing, prepared for the Training-School for Nurses attached to Bellevue Hospital.* New York: G. P. Putnam's Sons. Pp. 143. *Manual of Nursing, prepared for the Guidance of the Nurses in the Training-School at Charity Hospital, Blackwell's Island.* By Edward Frankel, M. D., one of the Visiting Surgeons to Charity Hospital, etc. Printed by the Department Press. 1877. Pp. 120.

BOTH these little hand-books contain plain and practical directions for the guidance of nurses, either in the performance of hospital duties, or in the care of patients in private practice, and contain as much information as can be imparted by the medium of books. Nothing can take the place of actual experience, but a careful perusal of these works may very materially assist a judicious woman in turning her experience to the best account. Dr. Frankel's manual has the disadvantage of being very poorly printed, but at the same time it is more compact and portable than the treatise published by the Putnams.

ART. IV.—*Eighth Annual Report of the State Board of Health of Massachusetts.* 8vo, pp. xxvi.-498. Boston: Albert J. Wright, 1877.

MASSACHUSETTS having taken the lead in sanitary reform, continues to maintain a position well to the front in the prosecution of the campaign. In the *Report* for 1877, the most practical papers are "Disease of the Mind," by C. F. Folsom, M. D., "The Sanitary Condition of Lynn," by J. G. Pinkham, M. D., and "Sewerage; its Advantages and Disadvantages, Construction, and Maintenance," by S. S. Cheesbrough, C. E. On the question of drainage and sewerage, a perfect system of either can never be accomplished until they are entirely disconnected. A sewer cannot act as a drain without polluting the neighboring soil, nor can a drain act as a sewer without the same result. Drains are constructed so as to absorb moisture; sewers should be constructed so as to prevent absorption or leakage. The report of the board itself is very full, and in the main satisfactory.

Art. V.—*Pathological Report of the Montreal General Hospital, for the year ending May* 1, 1877. By William Osler, M. D., of McGill University. One volume. Pp. 97. Montreal: Dawson Brothers.

This report contains a detailed account of a large number of interesting autopsies, as well as a condensed clinical history of each very important case. The cases have been very carefully and systematically worked up, and the various pathological changes concisely and graphically described. The book is preceded by an index, which adds greatly to its usefulness, the subjects being classified under the various organs to which they refer. To describe pathological changes accurately and concisely is not an easy matter; but Dr. Osler may be congratulated upon his ability to do so. We would be much pleased to see the example of the Montreal General Hospital followed by some of the hospitals in the United States, many of which possess ample material for contributing greatly, every year, to the sum of our knowledge in pathology.

Art. VI.—*Lectures on Clinical Medicine.*—By Dr. McCall Ander
Professor of Clinical Medicine in the University of Glasgow.

The seventeen lectures which make up this work embra
a wide range of subjects. It does not claim to be a systemat

one on clinical medicine, but is rather an attempt, by a few well-selected cases, to bring the student in contact with the patient. In the introductory chapter some illustrations of the more recent advances and discoveries in the field of practical medicine are given in a sketchy *résumé*.

The cases which form the text for these lectures are clearly and pleasantly narrated, but we think the author fails to make their differentiation as vivid as opportunity allowed.

The book presents no new feature, but is well abreast of the times in pathology and treatment.

Macmillan & Co. have issued the work in their usual attractive style.

ART. VII.—*Proteus; or, Unity in Nature.* By CHARLES BLAND RADCLIFFE, M. D., author of "Vital Motion as a Mode of Physical Motion," etc. Second Edition. London: Macmillan & Co., 1877. Pp. 214.

THE demand for a second edition of this work is proof that many readers have taken an interest in following the author in his metaphysical studies and speculations. The chapters on the traces of unity in plants and animals, and in all organic and inorganic forms, show a deep knowledge of the subject, and a conscientious effort to bring that knowledge to bear in support of the author's views and theories, which are decidedly opposed to the doctrine of evolution, and to almost all that is taught by the high-priests of the materialistic school.

ART. VIII.—*A New System of Medicine, entitled Recognisant Medicine; or, the State of the Sick.* Pp. 212.

Principles of Rational Therapeutics, commenced as an Inquiry into the Relative Value of Quinine and Arsenic in Ague. Pp. 84. By Bholanoth Bose, M. D., Lond., M. R. C. S. Eng., Her Majesty's Indian Medical Service. London: J. & A. Churchill. Calcutta: Thacker, Spink & Co., 1877.

WE began the perusal of these works with some interest, but were doomed to utter disappointment in the endeavor to follow the author in his complicated theories of the cause and cure of disease. So far from simplifying the subject, he seems only to add mystery and confusion, and we fail to eliminate a single idea or principle from the mixture of medicine, politics, and theology that constitutes the so-called "new system."

ART. IX.—*The Druggists' Hand-book of Private Formulas.* By JOHN H. NELSON, of Cleveland, Ohio. 12mo, pp. 206. Printed for the Author, 1878.

THIS volume contains numerous formulas for elixirs, emulsions, medicated syrups, and almost every unofficinal compound known in art and medicine. The method of preparing and the uses of the numerous compounds are fully described. Every druggist will find it to his advantage to possess this book. The work testifies to the qualifications of the author for his task, and shows him to be a thorough pharmaceutist.

ART. X.—*The Vest-Pocket Anatomist. Founded upon Gray.* By C. HENRI LEONARD, A. M., M. D. Second Enlarged Edition. Detroit, 1878. Price, 50 cents.

THIS is an exceedingly compact and complete epitome of anatomy, in small but clear print, and so portable that the student may constantly carry it to refresh his memory when the larger text-books are not accessible.

BOOKS AND PAMPHLETS RECEIVED.—On Hæmaturia as a Symptom of Diseases of the Genito-Urinary Organs. By O. Hoff, M. D., Ex-Visiting Surgeon City and County Hospital, San Francisco, etc. Philadelphia: Lindsay & Blakiston, 1878.

Brain: A Journal of Neurology. Edited by Drs. J. C. Bucknill, J. Crichton-Browne, D. Ferrier, and J. Hughlings-Jackson. New York: Macmillan & Co. Part I.—April, 1878. To be published quarterly. Annual subscription, $4.

Organic Stricture of the Urethra from Masturbation, with a Brief Account of its Pathological Significance. By Samuel W. Gross, A. M., M. Surgeon to the Jefferson Medical College Hospital, etc. Extracted f the "Transactions of the American Medical Association."

A Remarkable Case of Morphine Tolerance by an Infant. By Ja L. Little, M. D., Professor of Surgery in the Medical Department of

University of Vermont. Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children*, vol. xi., No. II., April, 1878.

Observations in Practice, Surgery, Gynecology, and especially Obstetrics. By George B. Walker, M. D., Professor of Obstetrics in the Medical College of Evansville. Read before the Indiana, Illinois, and Kentucky Tri-State Medical Society, in Evansville, October 17, 1877.

Notes on the Mineralogy and Petrography of Boston and Vicinity. By M. Edward Wadsworth, Instructor in Mathematics and Mineralogy in Harvard University. From the "Proceedings of the Boston Society of Natural History," vol. xix., May 16, 1877.

Amputation of Cervix Uteri. By W. H. Wathen, M. D., Clinical Lecturer on Diseases of Women and Children, Louisville Medical College, etc. Read before the Kentucky State Medical Society, April 3, 1878. (Reprint from May number *Richmond and Louisville Medical Journal.*)

Is Modern Education exerting an Evil Influence upon the Eye-sight of our Children? By A. W. Calhoun, M. D., Professor of the Diseases of the Eye and Ear in the Atlanta Medical College. (Reprint from the *Atlanta Medical and Surgical Journal.*)

Auto-Inoculation of Vegetable Parasites of the Skin, and the Clinical Testimony for their Identity or Non-Identity. By Edward Wigglesworth, M. D. Reprinted from the *Archives of Dermatology*, January, 1878.

Thirty-fifth Annual Report of the Managers of the State Lunatic Asylum, Utica, N. Y., for the Year 1877. Transmitted to the Legislature January 14, 1878.

Annual Announcement of Lectures at Toland Hall, Medical Department of the University of California, San Francisco, California. Session of 1878.

Transactions of the American Dermatological Association, with the President's Address at the First Meeting, held at Niagara, September 4, 5, and 6, 1877.

Clinical Gynecology. By W. H. Wathen, M. D., Clinical Lecturer on Diseases of Women and Children, Louisville Medical College. (January and February numbers *Richmond and Louisville Medical Journal.*)

Eighteenth Annual Report of the Medical Superintendent of the State Asylum for Insane Criminals, Auburn, N. Y. For the Year ending September 30, 1877.

Carbolic-Acid Injections in the Treatment of Piles. Radical Cures. By A. B. Cook, A. M., M. D. (From the *American Medical Bi-Weekly* of February 16, 1878.)

Suggestions in the Treatment of Spinal Diseases and Curvature. By E. H. Coover, M. D., of Harrisburg, Pa. (Reprinted from the *Medical and Surgical Reporter.*)

Lectures on Diseases of the Nervous System, delivered at Guy's Hospital. By Samuel Wilks, M. D., F. R. S. Philadelphia: Lindsay & Blakiston. 1878. Price, $5.00.

In Memoriam. Edmund Randolph Peaslee, M. D., LL. D. Transactions of the Academy of Medicine. Pp. 42.

Medical Women: A Statement and an Argument. By Charles West, M. D., Fellow of the Royal College of Physicians of London.

Reports on the Progress of Medicine.

CONTRIBUTED BY DRS. EDWARD FRANKEL, W. T. BULL AND GEORGE R. CUTTER.

SURGERY.

Rapid Cure of Traumatic Aneurism by Esmarch's Bandage.—A laborer, aged twenty, was admitted to the Taunton and Somerset Hospital, under the care of Mr. Cornish, for a tumor in the middle of the outer side of the calf of the right leg, which developed a month after a wound from a scythe. After a few days of rest the tumor appeared of the size of a hen's egg, deeply situated, pulsating synchronously with the heart, and giving a bruit on stethoscopic auscultation. Inability to lift foot. A flannel roller was applied from the toes to the middle of the thigh, except over the tumor. Esmarch's bandage was then put on with moderate tightness from the toes to the tumor, and, after the patient had stood in the erect position to fill the sac, from above the tumor to the middle of the thigh. In an hour pain necessitated its removal, and a horse-shoe tourniquet was fixed at the groin, the flannel bandage remaining. The tourniquet was slightly relaxed three hours later, again loosened an hour later, and removed after three hours more. No more pulsation was felt. The swelling gradually disappeared, and the power of lifting the foot returned.—*Lancet,* February 16, 1878. W. T. B.

Popliteal Aneurism; Two Cases treated successfully with Esmarch's Bandage; Two Failures; Cure after Ligation of Femoral.—A laborer, aged thirty-four, had an aneurism of the size of a small orange, which he had been cognizant of for only sixteen days. August 27th, bandage applied from the foot to the upper part of the thigh, passing lightly over the tumor, and kept on three-quarters of an hour, ether being administered during last thirty minutes. Tourniquet for four hours. Pulsation cont ued, but feeling of solidification existed. Two days later elastic band reapplied for the same time. Pulsation still. Leg moderately flexe Tumor became more solid, and pulsation ceased. September 8th, cu was complete, but flexion was continued for a few days.

A second case, a fireman, aged thirty-nine, was not improved aft three applications of the bandage, followed by the tourniquet at intervals of several days, and the femoral was ligated at apex of Scarpa's space, on October 15th, by Mr. Campbell. Under antiseptic dressings the cure was complete in three weeks, the wound healing in two weeks.—*Lancet*, January 19, 1878.

Another case of failure of the elastic bandage, with cure by ligature of the femoral at the apex of Scarpa's triangle (antiseptically), is reported by Mr. Barwell (*Lancet*, January 26, 1878). The patient was a porter, aged forty-nine, who had noticed the tumor thirteen months before. He was a hard drinker, gave history of rheumatism and syphilis, and had chronic phthisis. The tumor was in right popliteal space. There was loss of power of that limb. November 14th, Esmarch's bandage from toes to upper part of thigh for seventy hours, without effect. Three days later the same for five hours. November 22d, ligature of artery. Complete cure in twenty-eight days.

In contrast to the above is a case treated by Mr. Croft, at St. Thomas's Hospital (*Lancet*, January 26, 1878), in which the elastic bandage was applied for one hour with the effect of enfeebling the pulsation in the aneurism. Digital compression was made for five hours and fifty minutes immediately after removal of the bandage, and the pulsation ceased entirely. The patient was a woman, aged forty-three, in pretty good health. The aneurism, of eight and a half months' duration, was as large as a medium-sized orange, and its coverings on the outer side of the limb were thin. One bandage was applied from the toes to the lower edge of the tumor; the woman was then made to stand erect for a minute, and a second bandage was applied from the upper limit of the tumor to near the groin.

W. T. B.

Psoas Abscess opened with Antiseptic Treatment; Recovery.—A boy, aged fourteen, had a tense and fluctuating swelling in left groin, of five months' duration. Three aspirations had not materially reduced size of tumor. An incision under spray gave vent to curdy pus and pieces of vertebræ. Long drainage-tube and gauze dressing, held in place by spica bandage of elastic material. Gradual healing without local inflammation or constitutional reaction. Drainage-tube shortened from time to time, and removed three months later. Complete cure.—By Dr. Ogilvie Will, in *Lancet*, February 9, 1878. W. T. B.

PRACTICE OF MEDICINE.

Movable Kidney, and its Relations to Dilatation of the Stomach. By Dr. Mueller-Warner.—The author has observed, in the clinic of Prof. Bartels, a number of cases of right movable kidney, with dilatation of the stomach; and the opinion arrived at by both is, that the dilatation in these cases is due to the displacement of the right kidney. The latter, in being displaced forward and inward, will compress the descending portion of the duodenum, which has a very fixed position; consequently there results a condition similar to that of stricture of the pylorus, the stomach being compelled to dilate from the obstacle offered to the onward passage of its contents. In nearly all the cases observed by Bartels, the patients were young girls and women from the country, ignorant of the use of the corset, who secured their skirts by strings, which caused much constriction of the abdomen. In other cases the patients were males, who had the habit of constricting the abdomen with waist-belts. Now, according to the author, the groove made by the constricting band passes, in persons not obese, between the second and third dorsal vertebræ, and anteriorly, about two centimetres above the umbilicus; that is to say, the constriction is made on the middle portion of the right kidney, the left generally occupying a higher position. Again, from the anatomical relations of the right kidney, it is evident that, under the influence of pressure, it may be displaced downward, forward, and inward. A constricting abdominal band, therefore, not only compresses the right kidney, and, by augmenting the intra-thoracic pressure during inspiration, causes the diaphragm and liver to press on it from above, but will likewise prevent the kidney from downward displacement. Hence the kidney can only shift its position forward and inward, where it will meet the descending portion of the duodenum. The left kidney, by its more elevated position, is usually not affected by the constricting band, and is five-tenths of a centimetre distant from the spleen, and therefore, when pressed upon, finds room above. In order to explain the infrequency of movable kidney, Bartels admits the existence of individual predisposition, together with the frequent variations of position of the right kidney. Lastly, he thinks that the pressure exercised on the abdominal walls by the corset is less apt to engender movable kidney, because it is exerted over a larger surface.—*Berliner klinische Wochenschrift*, No. 42, 1877. *Gaz. Méd. de Paris*, No. 46, 1877. E. F.

Differential Diagnosis of Pleuritic Effusions by Means of Physical Signs.—About two years ago Prof. Bacelli, of Rome, published a paper in which he sought to demonstrate the possibility of diagnosticating by the aid only of auscultation the fluid or solid character of the effusion. His method consists in applying the ear to the naked thorax at a point where percussion reveals dullness, and the patient is then ordered to pronounce a word of appropriate consonance, first with a loud and then with a low voice. The head of the patient should be directed as far away as possible from the side to which the physician's ear is applied. When the effusion is poor in morphological elements, the sound will be clear; when rich in morphological elements, the sound will be indistinct or covered by egophony. When the bronchi are filled with mucus, the sound will be indistinct, and will not be transmitted at all when the pleura contains a large quantity of pus or blood. Dr. Valentiner (*Berl. klin. Wochenschrift*), having tested the above statements, and verified his own results by puncture, arrives at the following conclusions: 1. Abundant dropsical effusions (even when rich in albuminous matters) transmit the sound very well, even when the patient speaks low. 2. Inflammatory exudations, rich in fibrin, and more or less thick, only slightly prevent the transmission of the same sound. 3. When the effusion is purulent or sanguinolent, a low sound of the voice is not transmitted. 4. Accumulations of mucus in the large bronchi prevent a clear transmission of the voice. 5. So also in the case of deposits of lobular pneumonia.—*Gaz. Méd. de Paris*, 45. E. F.

THEORY AND PRACTICE.

Treatment of Typhus.—In the recently-issued third edition of Dr. Brand's work on the treatment of typhoid fever with cold baths, that author speaks very strongly in favor of that method of treatment, and he lays, on the whole, but slight weight on the contraindications which have been mentioned by various writers. Thus, he does not regard intestin haemorrhage as a contraindication, so long as the loss of blood has exerte no marked influence on the pulse and temperature; according to his ide there is no proof that the bath itself produces intestinal hæmorrhage Catarrh of the lungs is never made worse by the cold bath; on the contrary, it removes the danger which this complication might produce, fo the cold-water treatment undoubtedly combats the development of an inflammation of the lungs. While in children and adults a powerful antipyretic treatment may be obtained in this manner, great caution is necessary with aged persons. The assertion that there is a greater tendency to relapses after this treatment is not shown by the accompanying statistics, while, on the contrary, it may be considered certain that it contributes in no small degree to the shortening of the period of convalescence. As to after diseases, the author has noticed only one psycosis. In regard to fatality, the very large statistics show that with cold-water treatment the deaths were only 7.4 per cent.

Quinine Exanthema.—Since Prof. Köbner has called attention to the acute exanthemata which may arise after the use of quinine, several cases have been published, and it is not improbable that they occur much more frequently than has been supposed. During an epidemic of whooping-cough, Dr. Bauer, of Westphalia, had a little girl, five years of age, under treatment. On the 29th of April he ordered decoct. cort. chinœ. On the 3d of May an exanthematous eruption appeared on the face and spread over the whole body, and terminated on the eighth day with desquamation. The form and course of the eruption had a striking resemblance to measles, but the contagion could not be traced, and there had been no cases of measles in that district for several years. The whooping-cough followed its course and affected the patient to a high degree. On the 19th of May, when there was no further trace of the eruption, chlorate of quinine was ordered, 20 centigrammes twice a day. After taking three powders, an exanthematous eruption again appeared, which spread from the face over the entire body, this time resembling scarlatina. The patient was in a bad condition during the period of efflorescence, with delirium, and two exacerbations of the fever a day. Bauer did not ascribe the blame to the quinine, but, after twelve powders had been taken, it was discontinued, as it did not check the fever. The second day after stopping the quinine the eruption began to fade, and desquamation, here and there in large flakes, occurred. Scarlet-fever poison could not be traced, no cases of the fever having occurred in the district for several years.—*Berl. klin. Wochenschrift*, and *Ugeskrift for Laeger*, No. 4, 1878. G. R. C.

THERAPEUTICS.

Podophyllin in Hepatic Colic and Intestinal Catarrh.—The beneficial action of podophyllin in habitual constipation is well known; it has also been found very efficacious for hemorrhoids. Dr. Bufalini now makes known in *La Sperimentale* a new and excellent application of this remedy in the treatment of hepatic colic and calculi of the liver. Van den Corput recognized the good effects of podophyllin in hyperæmia of the liver with stasis of the vena porta. It has also been ascertained, by careful experiments, that when it is injected into the duodenum of a dog a considerable increase of the biliary secretion occurs, and that the bile thus secreted contains more solid matter than ordinary bile, and that these effects increase in proportion as the purgative action is diminished. Bufalini details several cases in which this remedy was entirely successful, though many other methods of treatment had failed. He explains its beneficial action by the fact that it excites the biliary secretion, facilitates its flow, and thus prevents its retention and the aggregation of its materials. The formation of calculi thus becomes impossible. He also believes that podophyllin, in small doses, is quite as successful in intestinal catarrh as in constipation, which is undoubtedly due to the greater flow of bile into the intestine, and the functional regularization which results.—*Jour. des Sciences Méd. Louvain*, 10, 1877. G. R. C.

OBSTETRICS.

Hot-water Injections in Uterine Hæmorrhage.—Runze tried the effect of injections of water at a temperature of about 40° R. in uterine hæmorrhages. The result was in general satisfactory, in some cases very favorable, but in others no effect was produced. This process was tried in ten cases of atomic hæmorrhage, in seven cases of hæmorrhage after abortion, or retention of placental fragments, in three cases of hæmorrhage with neoplasms. The results were relatively best in the first class; in the second it succeeded only after completely emptying the uterus; in the third the benefit was only momentary. Generally the temperature of 40° R. was tolerated, occasionally only 30°. A temperature of 41° or more was inadmissible. The irrigator is recommended for the injections. Especial mention is made of the fact that anæmic women find their general sensations improved by the imparted heat.—*Berliner klin. Wochenschrift* and *Centralblatt f. Chirurgie*, No. 38, 1877. G. R. C.

Miscellany.

Journalistic Notes.—We have received Part I. of the new quarterly entitled *Brain: A Journal of Neurology.* It is edited by Drs. J. C. Bucknill, J. Crichton-Browne, D. Ferrier, and J. Hughlings-Jackson, and published by Macmillan & Co. The first issue contains several able original articles, among them one by Dr. Jonathan Hutchinson on the "Symptom-Significance of the different States of the Pupil;" George Henry Lewes a paper on "Motor Feelings and the Muscular Sense;" Dr. W. R. Gowers one on "Symptoms of Organic Brain Disease;" and Dr. Clifford Albutt an excellent and suggestive chapter on "Brain-Forcing." In addition to seven original contributions, the journal contains reviews of books, reports of clinical cases, and a full abstract of British and foreign journals. With so distinguished a corps of editors the new quarterly cannot fail to deserve success. The title *Brain* is oddly chosen, and is in rather questionable taste. We may have it imitated in *Skin: A Journal of Dermatology Uterus: A Journal of Gynecology*, or something equall appropriate. The *Western Lancet*, of San Francisco, ha changed editors. The names of Dr. George Hewston an James Simpson now appear on the title-page.

State Medical Societies.—The President of the Tennessee State Medical Society for the ensuing year is Dr. R. F. Evans, of Shelbyville. The forty-fifth annual meeting was held in Memphis, April 2d. Dr. H. S. Orme, of Los Angeles, has been elected President of the California State Medical Society. Dr. A. A. Horner has been elected President of the State Medical Society of Arkansas. Dr. J. T. Johnson, of Atlanta, has been elected President of the Medical Association of Georgia. Dr. R. D. Webb has been elected President of the Alabama State Medical Association. Dr. George Cupples was elected President of the Texas State Medical Association, at the annual meeting held April 10th, in Galveston. At the eightieth annual meeting of the Medical and Chirurgical Faculty of Maryland, held April 9th, Dr. Samuel P. Smith, of Cumberland, was elected President for the ensuing year. Dr. Charles A. Todd, of Owensboro, was elected President of the Kentucky State Medical Society at the recent meeting, held in Frankfort. Dr. B. F. Kittrell has been elected President of the Mississippi State Medical Association. At the recent meeting of the South Carolina State Medical Association, in Greensville, Dr. S. S. Marshall, of that town, was elected President. Dr. R. D. Murray, of Key West, has been elected President of the Florida State Medical Association.

Alumni Association Prize.—The Alumni Association of the College of Physicians and Surgeons, in the City of New York, offer for the following year a prize of five hundred dollars, open for competition to all alumni of the college. It will be awarded to the best *medical essay* submitted, if deemed sufficiently meritorious, upon any subject which the writer may select. The essay, in order to compete, must show evidences of *original investigation*. Each essay must be marked with a device or motto, and accompanied by a sealed envelope, similarly marked, containing the name and address of the author. They must be submitted to the prize committee on or before February 15, 1879.

The committee consists of Drs. Henry B. Sands, William H. Draper, and Frank E. Beckwith. Essays may be sent directly to any of the committee, at the college.

Appointments, Honors, etc.—The degree of LL. D. has been conferred by the Board of Trustees of Columbia College on Prof. Fordyce Barker. Dr. T. C. Minor has been appointed to the position of Health Officer of Cincinnati.

Profs. Charcot and Brown-Séquard are the candidates for the Chair of Medicine in the Collége de France, made vacant by the death of Claude Bernard. Lister has been made an honorary member of the Royal Society of Physicians of Vienna. Charcot, J. Marion Sims, Hutchinson, Pacini, and Sommer have been elected corresponding members of the same society. Mr. Nettleship has been elected Ophthalmic Surgeon to St. Thomas's Hospital, in place of Dr. Liebreich. The next meeting of the International Medical Congress will be held in Amsterdam, September 8th, 1879. Twenty-seven surgeons have fallen victims to typhus fever in Caucasia. The number of vacancies for medical men in the Russian army is stated officially to be 650.

Death from Chloroform.—Dr. Hugh M. Taylor reports, in the *Virginia Medical Monthly* for May, a death from chloroform, which occurred in the practice of Prof. McGuire, April 20, 1878. The operation of external perineal urethrotomy had been performed on a gentleman forty-one years of age, under chloroform, and the anæsthetic had been removed for a few seconds, when the patient ceased to breathe. Efforts were immediately made to restore life, including artificial respiration, amyl, inversion, etc., but without avail. Squibb's purified chloroform was used, the patient having inhaled altogether about one ounce, during three-quarters of an hour.

The Obstetrical Gazette.—A new monthly journal is announced by Dr. E. B. Stevens, of Cincinnati, under the above title, to be devoted to obstetrics and diseases of children. It will begin on the 1st of July, 1878, and will contain forty-eight pages of the size and style of THE POPULAR SCIENCE MONTHLY. Many well-known writers have promised contributions.

The Warren Prize of 1880.—The subject of this prize of $400 will be "Original Observations in Physiology, Surgery, or Pathological Anatomy." Essays are to be sent to the resident physician, Massachusetts General Hospital, not later than February 1, 1880.

Something New in Dentistry.—Dr. Weil, of Munich, has adopted the method of extracting teeth requiring to be filled, filling them at his leisure, and replacing them in the mouth. He claims to have had excellent results, with both bicuspids and molars.

The Late Seth Shove, M. D.—At a regular meeting of the "Croton Medical and Surgical Union," held at Katonah, Westchester County, N. Y., April 2, 1878, the following resolutions were adopted.

Whereas, We have learned with profound sorrow of the death of Dr. SETH SHOVE; and

Whereas, It is our sad duty to testify to the great loss sustained by us in his death; and

Whereas, It is becoming and proper that we should bear public testimony to his excellence of character, and to his high professional attainments; Therefore, be it

Resolved, That in the death of Dr. SHOVE this Society, of which he was an honored and efficient member, has sustained a loss which is irreparable.

Resolved, That we bear witness to his superior talents, his cultivated mind, his kind heart, his sympathizing nature, and his high sense of professional honor.

Resolved, That in his varied learning, his ripe professional experience, and his wise counsels, we recognize the qualities that constitute the highest type of a physician and the best guarantees for the professional success which crowned his career.

Resolved, That we shall ever cherish his noble example as a man, his enviable reputation as a physician, and his endearing qualities as a friend.

Resolved, That we sympathize with his family in this their overwhelming sorrow.

Resolved, That a copy of these resolutions be sent to the family of the deceased, and that they also be published in the medical journals and the local papers.

J. Q. ADAMS, M. D.
J. H. SMITH, M. D. } *Committee.*
L. F. PELTON, M. D.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from April 14 *to May* 18, 1878.

Head, J. F., Lieutenant-Colonel and Surgeon.—Assigned to duty at Boston, Mass., as Attending Surgeon and Examiner of Recruits. S. O. 85, A. G. O., April 20, 1878.

Hammond, **John** F., Lieutenant-Colonel and Surgeon.—Assigned to duty as Post Surgeon at Fort Adams, R. I., relieving Surgeon Campbell. S. O. 71, Department of the East, April 24, 1878.

Campbell, J., Lieutenant-Colonel and Surgeon.—Relieved from duty in Department of the East, and to report in person to the Commanding Officer Department of the South for duty as Medical Director of that Department, relieving Surgeon Head. S. O. 85, C. S., A. G. O.

Alexander, R. H., Major and Surgeon.—Assigned to duty at Fort Trumbull, Conn. S. O. 71, C. S., Department of the East.

Randolph, J. F., Major and Surgeon.—Relieved from duty in Department of the East, to proceed to his home, and authorized to remain there, on monthly certificates of disability, until his health is sufficiently restored to resume duty. S. O. 90, A. G. O., April 26, 1878.

Irwin, B. J. D., Major and Surgeon.—Relieved from duty at U. S. Military Academy, West Point, N. Y., August 28, 1878, and then to report by letter to the Surgeon-General. S. O. 79, A. G. O., April 18, 1878.

Alexander, C. T., Major and Surgeon.—To report in person to the Commanding General, Department of West Point, for duty at the Military Academy, Aug. 28, 1878. S. O. 79, C. S., A. G. O.

Clements, B. A., Major and Surgeon.—Granted leave of absence for one month on Surgeon's certificate of disability. S. O. 37, Department of the Platte, May 1, 1878.

Town, F. L., Major and Surgeon.—Relieved from duty in Department of the Missouri, to proceed to New York City, and report thence by letter to Surgeon-General. S. O. 101, A. G. O., May 10, 1878.

Frantz, J. H., Major and Surgeon.—Relieved from duty in Department of the East, and authorized to remain at his home on monthly certificates of disability, until his health is sufficiently restored to resume duty. S. O. 101, C. S., A. G. O.

Tilton, H. R., Major and Surgeon.—Relieved from duty in Department of Dakota, to proceed to New York City, and thence report by letter to the Surgeon-General. S. O. 101, C. S., A. G. O.

Woodhull, A. A., Major and Surgeon.—Relieved from duty at Angel Island and assigned to duty as Post Surgeon at Point San José, Cal. S. O. 69, Division of the Pacific and Department of California, May 2, 1878.

Williams, J. W., Major and Surgeon.—Relieved from duty at Washington Arsenal, D. C., and ordered to Department of the Missouri. S. O 101, C. S., A. G. O.

Waters, W. E., Captain and Assistant Surgeon. Assigned to duty as Post Surgeon at Fort Clark, Texas. S. O. 77, Department of Texas, April 10, 1878.

Brown, H. E., Captain and Assistant Surgeon.—Relieved from duty in Department of the East, and ordered to Department of Texas. S. O. 101, C. S., A. G. O.

Caldwell, D. G., Captain and Assistant Surgeon.—Relieved from duty in Department of Texas, and to comply with S. O. 9, C. S., A. G. O. S. O. 92, Department of Texas, April 30, 1878.

O'Reilly, R. M., Captain and Assistant Surgeon.—Relieved from duty in Department of the East, and ordered to Department of the South. S. O. 101, C. S., A. G. O.

Heizmann, C. L., Captain and Assistant Surgeon.—Relieved from duty in Department of the East, and ordered to Department of the Columbia. S. O. 101, C. S., A. G. O.

Yeomans, A. A., Captain and Assistant Surgeon.—To proceed to Fort Griffin, and relieve Assistant Surgeon Caldwell, receipt to him for all property, and then return to Fort Richardson. S. O. 89, Department of Texas, April 25, 1878.

Loring, L. Y., Captain and Assistant Surgeon.—Assigned to duty at St. Louis Barracks, Mo.

Campbell, A. B., Captain and Assistant Surgeon.—Relieved from duty in Department of Texas, to proceed to New York City, and thence to report by letter to the Surgeon-General. S. O. 101, C. S., A. G. O.

Wilson, W. J., Captain and Assistant Surgeon.—Relieved from duty in Department of the Missouri, to proceed to New York City, and report to the Army Medical Board for examination for promotion, and after examination report by letter to the Surgeon-General. S. O. 101, C. S., A. G. O.

Styer, Chas., Captain and Assistant Surgeon.—Relieved from duty in Department of the East, and ordered to Philadelphia, Pa. S. O. 81, A. G. O., April 16, 1878.

Granted leave of absence to June 30, 1878; and his resignation accepted, to take effect June 30, 1878. S. O. 95, A. G. O., May 3, 1878.

Corson, J. K., Captain and Assistant Surgeon.—Relieved from duty in Department of the East, and ordered to Department of Arizona. S. O. 101, C. S., A. G. O.

Hall, John D., Captain and Assistant Surgeon.—Relieved from duty in Department of the East, and ordered to Department of Texas. S. O. 101, C. S., A. G. O.

Skinner, J. O., First Lieutenant and Assistant Surgeon.—Relieved from duty in Department of the South, and ordered to Department of Arizona. S. O. 101, C. S., A. G. O.

Turrill, H. S., First Lieutenant and Assistant Surgeon.—Relieved from duty at Fort Clark, and assigned to duty at San Felipe, Texas. S. O. 90, Department of Texas, April 26, 1878.

Comegys, E. T., First Lieutenant and Assistant Surgeon.—Relieved from duty at San Felipe, and assigned to duty at Fort Clark, Texas. S. O. 90, C. S., Department of Texas.

Barnett, R., First Lieutenant and Assistant Surgeon.—Relieved from duty in Department of the Gulf, and ordered to Department of the Platte. S. O. 101, C. S., A. G. O.

Crampton, L. W., First Lieutenant and Assistant Surgeon.—Relieved from duty in Department of the Gulf, and ordered to Department of Dakota. S. O. 101, C. S., A. G. O.

Taylor, M. E., First Lieutenant and Assistant Surgeon.—Relieved from duty in Department of the Gulf, and ordered to Department of the Missouri. S. O. 101, C. S., A. G. O.

Newlands, Wm. L., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post Surgeon at Angel Island, Cal. S. O. 69, C. S., Division of the Pacific and Department of California.

Buell, J. W., First Lieutenant and Assistant Surgeon.—Relieved from duty in Department of Texas. S. O. 86, A. G. O., April 22, 1878.

Obituary.

Francis Gurney Smith, M. D., Emeritus Professor of the Institutes of Medicine in the University of Pennsylvania, died April 6th, in the sixty-first year of his age. He graduated at the University of Pennsylvania in 1840, and after attaining an unusual professional success was elected one of the attending physicians to the Pennsylvania Hospital. He was one of the founders of the Philadelphia Obstetrical Society. In 1863 he succeeded the late Dr. Samuel Jackson as Professor of the Institutes of Medicine in the University of Pennsylvania, and during a long term of service he inaugurated many improvements. He is known as one of the authors of the "Compendium of Medicine" (Neill and Smith's), and as the American editor of "Carpenter's Physiology." He also edited "Marshall's Physiology," and translated "Barth and Rogers's Manual of Auscultation and Percussion." For nearly ten years he was one of the editors of the *Philadelphia Medical Examiner*.

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